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Vol. XV JANUARY, 1920 No. 1

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VOL. XV. JANUARY, 1920 NO. 1

Progress in Tuberculosis Control*

By JOHN A. KIERNAN, Washington, D. C.,
Chief of Tuberculosis Eradication Division, B. A. I.

TWO years ago our organization adopted the accredited herd plan on the recommendation of a joint committee representing the pure-bred cattle breeders' associations and the United States Live Stock Sanitary Association. At that time there were no federal accredited herds but there were some herds in that status in Minnesota, Illinois and Wisconsin, in which states such a plan had been in operation for a few years.

On December 1, 1918, one year after the adoption of the accredited herd plan, there were 204 accredited herds in the United States with an aggregate of 5,743 cattle. On March 31, 1919, when herd list No. 2 was issued, there were 782 accredited herds representing 19,000 cattle. At that time there were, also, 6,535 herds with an aggregate of approximately 80,000 cattle which had passed one successful tuberculin test without reactors, in preparation for being accredited.

On this day, the second anniversary of the inauguration of the American accredited herd plan, there are 1,355 herds with a total of 35,204 cattle fully accredited and 12,838 herds representing a total of 191,428 cattle that have passed the initial successful test in their advancement to full certification.

While the data furnished gives a fair estimate of the progress of the work, it is a very feeble exposition of the sentiment of the live-stock owners of this nation relative to the tuberculosis problem. Two years ago the plan was launched and it was necessary to take up the inauguration of the work with every state. It was absolutely essential to start from the ground floor and build up state by state until today every state in the Union has accepted and adopted the plan and it is in actual operation in forty-five states. The number of accredited herds and herds which have passed one successful test represents only a portion of the total number of herds in the United States that are under supervision so that they may be accredited when they qualify. On November 15, 1919, there was a total number of 17,096 herds representing 367,239 cattle under state and federal supervision for the eradication of tuberculosis. We recognize that, while this is a fairly good showing it represents but a very minute portion of the total number of herds and the total cattle population of the United States, but in analyzing the work we are compelled to deduct that the herds now under supervision represent the most progressive breeders in practically all of the pure-bred cattle associations. Among some of the breeds practically every prominent herd is under supervision so, while the herds that have been attracted to the accredited herd plan are not extraordinary it is clearly demonstrated that the best breeders of cattle in America see in the system a practical plan by which they can present to the

*Read at 23rd Annual meeting U. S. Live Stock Sanitary Association, Chicago, December 1-3, 1919.

public the fact that their herds are free from tuberculosis.

One of the most disturbing features of the work at this time is our inability to keep pace with the demand for herd tests. On November 15, 1919, there were 3,233 herds waiting to receive the initial test. At the rate this list is being augmented it is reasonable to presume that by January 1, 1920, it will be largely increased. Most unfortunately while the demand for accredited herd work was increasing it was found necessary to reduce the force of inspectors employed by the Bureau of Animal Industry on account of insufficient funds provided for operating expenses. The fund provided for the payment of indemnities has only been slightly drawn on because there are not now a sufficient number of inspectors to test cattle to make it possible to pay that amount of indemnity to the cattle owners for tuberculous animals. Paragraph 1 of the uniform methods and rules for accrediting herds of cattle provides that the test shall be made under the supervision of the Bureau of Animal Industry or a regularly employed veterinary inspector of the state in which co-operative tuberculosis eradication work is conducted. At this time there are in the neighborhood of 300 state and federal employes engaged full time in the eradication of tuberculosis. These forces are being gradually increased from month to month, and it is not without the realm of reason to anticipate that within a few years there will be more than a thousand employes devoting their entire time to the control of this great plague. Can satisfactory progress be made with such a combatant army of veterinarians? I say, most decisively, "No." We can clean up hundreds of herds in every state; we can clean up tens of counties throughout the United States; but there are tens of thousands of herds to be cleaned up and thousands of counties to be freed from tuberculosis before we can lay any claim to substantial progress in the eradication of the disease.

Our forces now are, and most necessarily would always be absolutely inadequate under the present plan of operation; that is, the employment only of official veterinarians in this work. But does the present plan represent all the ideas and conceptions of the necessity for conducting his campaign? It does not. It was never contemplated that satisfactory progress could be made in the eradication of tuberculosis by the employment only of state and federal officials whose entire time was devoted to the work of the respective governments by which they are employed. The scope of this work—its proportions—were duly recognized at the time the work was launched. Those in charge of the work recognized, from the first, the tremendous task undertaken and they well understood that, if satisfactory progress was to be made, every available competent person in the United States who could lend his assistance to the campaign must necessarily be enlisted as a co-operating force so that satisfactory progress might be made.

You have heard, perhaps, as we all have heard, that this tuberculosis-eradication work was "depriving some veterinarians of their bread and butter." In my mind there is a serious doubt whether I should speak such a phrase—and to a discreet mind, when doubt arises the subject of the doubt should be dismissed and not uttered. But this claim has been oft repeated, less often by practicing veterinarians than by would-be conservators of the prerequisites of the private veterinarians—those intense, philanthropic individuals who are eternally vigilant to protect others from the wrath and inquisitions of an omnipresent evil, those valiant crusaders who with true chivalric spirit are searching everlastingly as Don Quixote was for opportunities to demonstrate their altruistic and indomitable courage and determination to right imaginary wrongs. No state has any license or desire to do the private veterinarian an injury, and far be it from the thought of the officials of the Bureau of Animal Industry to work any hardship upon them. The Bureau believes that the campaign for tuberculosis eradication that is now in progress will do more to improve the practice of the private veterinarians of the United States than any other work ever inaugurated, with the possible exception of the control of hog cholera. The private veterinarian must and will play a very important part in this campaign and it was intended from the very beginning of the work that in time he should be brought into active co-opera-

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tion. As a true and substantial manifestation of the conception the Bureau has had of the part to be played by the private veterinarian, you are referred to the article on tuberculosis eradication read by the speaker at the meeting of this association one year ago. A plan was then outlined for turning over to the private veterinarian accredited herds which had officially been found free from tuberculosis. I have the honor to submit to you the following proposed plan for associating approved private veterinarians with the accredited herd plan:

1. When a herd has been officially accredited continuously by the United States Department of Agriculture and state for a period of two years it may then be tuberculin tested annually by any veterinarian whose name is upon the accredited list of veterinarians approved of by the United States Bureau of Animal Industry, provided that before any veterinarian other than one who devotes his entire time to the work of any state or the Bureau of Animal Industry can be approved for accredited herd work, he shall have passed an examination conducted by the proper live-stock sanitary official of the state in which he resides, and the Bureau of Animal Industry. He then shall be eligible to conduct annual tuberculin tests upon herds which have been officially accredited upon dates approved of by the proper state live stock sanitary official and the inspector in charge or the Bureau of Animal Industry in the state wherein the herd is located.

2. No herd test can be made by such an approved veterinarian unless he has instructions in writing from the state official to that effect. The dates of the annual tests for each herd shall be recorded in the state office and, also, in the office of the inspector in charge. On any annual test the state and Bureau reserve the right to have a regularly employed official present on the farm to supervise the testing done by the approved veterinarian.

3. The approved veterinarian shall conduct each test strictly in accordance with instructions issued by the Bureau of Animal Industry to employees engaged in co-operative tuberculosis eradication work. At the conclusion of each test, the approved veterinarian shall submit to the state veterinarian and the inspector in charge of the Bureau of Animal Industry, a copy of the record of the test.

4. Any animal of a herd under supervision which may react in any herd tuberculin tested by an approved veterinarian shall be marked for the purpose of identification in accordance with the regulations of the state in which the animal is located.

5. Tuberculin tests applied by veterinarians other than those regularly employed by the state and the Bureau of Animal Industry shall be paid for by the owner of the herd, or by the state.

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Regulation 7, the first Bureau regulation requiring the application of the tuberculin test for cattle shipped interstate, provides that practically all the testing shall be done by private veterinarians who have demonstrated that they are capable of making tests, and at this time upward of six thousand private veterinarians are upon the list and have been furnished certificates by the Bureau to tuberculin test cattle under that regulation. Where in all the annals of veterinary medicine has a more extensive, a more comprehensive, and a more practical demonstration of the desire of enlisting private veterinarians to supplement the work of official veterinary organizations charged with the responsibility of controlling and eradicating infectious diseases, ever been consummated? The Bureau has endeavored in that way to enlist the services of every qualified veterinarian in America in the campaign of tuberculosis eradication. It was not a secondary thought that produced this existing plan. It was conceived at the outset and carried into execution at the most propitious moment. Some few people have conceived the idea that the state veterinarians and the Bureau worked a gross injustice upon them when in the accredited-herd plan they provided that tests should be made only by official employes. The error in so construing the preparation of that plan is that anybody designedly left out the private veterinarian. The accredited herd plan provides that the test shall be made by a state or bureau employe. In my judgment it is a wise provision. I do not think that there would be any way to destroy and cast into ignominious oblivion the accredited-herd plan quicker than to permit herds to become accredited upon a test made by every individual, private practicing veterinarian in the United States.

To place the accredited-herd plan on the basis of a test by every veterinarian would be putting it in the same position as the interstate movement of cattle has been for ten years. Immediately there would spring up in practically every state the skepticism that has existed for years as to the reliability of the test—and where would the accredited herds be, if in one state there were a hundred herds upon the list that were absolutely ignored in ten other

states? If State "A" had 100 herds and State "B" had 100 prospective purchasers of pure-bred cattle, but State "B" had no confidence in the reliability of the accredited herds in State "A", what would it avail that state to have an accredited-herd list? Would it not be absolutely upon the same basis as the interstate movement of cattle has been for ten years? And would not these various states say—"We do not accept accredited herds from State 'A' or State 'D' or State 'L'. We do accept accredited herds from State 'C' and State 'K' under certain conditions and restrictions and interpretations. They may come into the state provided we retest them in sixty days." Would that be an accredited-herd plan that you would be proud of, or that any state would take interest in, or any legislature appropriate money to maintain, or any breeder, any reliable and responsible breeder, take any pride in being a party to? In contrast to that condition which I think would exist if herds were accredited on the same basis as cattle were tested for interstate shipment for many years, is our accredited-herd system today containing more than 1,000 herds and representing many thousand cattle. After having the official approval of the U. S. Department of Agriculture and of every sovereign state in America an accredited herd may move from one state into another state at any time the owner desires to move it or any member of it without any additional tuberculin test. Furthermore, a member of an accredited herd or the entire herd itself may move from any state in the United States into the Dominion of Canada and the Argentine Republic or the Republic of Chile, and I daresay to every country in the world that will accept our cattle without any additional tuberculin test. These herds are tested annually and those that are accredited receive a certificate from the state and the United States Department of Agriculture which the owner may use to tell the world that, so far as human ingenuity and the best biological agencies that have so far been found can detect the presence of tuberculosis, his herd is free from that disease.

Is there a person within the hearing of my voice that can find any reasonable complaint with a plan that can pick out of a chaotic condition the cattle industry of America and, within a period of two years, place it upon a pedestal that can withstand the darts of criticism? Can any person reasonably object to the accredited-herd plan that the live stock owners of America have endorsed and that practically every pure-bred association in America has gone on record by instructing their members and urging their members to place their herds on such list at the earliest possible date? It is a matter of great pride that the speaker is so fortunate as to be linked up with a work that has so much worth behind it that the breeders of America claim it as the greatest step ever undertaken in the control of tuberculosis. Shall the private veterinarian take a part in accredited-herd listing? Yes: he shall take a part equal to any person now engaged in that work provided he demonstrates that he is capable of doing the work, providing he demonstrates that he does the work in the same way as those engaged in it, and provided he does it in a businesslike way at the time it is intended that it shall be done. The live stock world cares little whether tuberculosis is eradicated by private veterinarians or officials of the state and federal government, but it is concerned in the conservation of its resources and it does not propose to permit tuberculosis to spread until practically all the herds—bovine and porcine—are infected. It has called the halt on the great white plague so far as it affects cattle and swine. It says, we believe, that when tuberculosis has advanced at the rate of 1 per cent per annum among the swine of America for the last ten years with prospects that it will continue to spread at an increasing rate unless checked we should be traitors to the nation if we did not make every endeavor to check the ravages of the disease at this time. It further says to the state live stock sanitary officials and to the U. S. Department of Agriculture: "Your organizations are charged with the responsibility for the control and eradication of infectious diseases of live stock and we hold you accountable for the progress that tuberculosis has made and the prospects of its further advancement. The burden is upon your organizations to check its spread and we, with our organization, and through our individual efforts, are go-

ing to hold you strictly to account. If tuberculosis is an eradicable disease, you must eradicate it!" It strikes me that if we don't eradicate it, some one else will get the job; through some other organizations, state and federal, an effort will be made to exterminate tuberculosis. We have a tolerant people in this nation—easy-going, good-natured, willing to overlook mistakes, sympathetic and tolerant—but all these virtues have a limitation and this same people when they make their minds up to do a thing never fail!

The accredited-herd plan has been endorsed by every pure-bred cattle-breeding association in the United States and has been approved by practically every agricultural and live stock journal in America. The plan is not perfect but it is reliable. It has withstood the test of time, and today it stands approved. That it can be improved here and there, there is no gainsaying, but the plan, if followed, will be the beacon light to guide the cattle industry of America in the eradication of tuberculosis. From time to time accredited herds will be found to contain tuberculous animals, and some owners will be disappointed, and may question its success, as some individuals question the skill of the surgeon, or the observations of the astronomer, or the reckoning of the mariner, or the astuteness of the statesman, or the ability of the lawyer, or the diagnosis of the physician, or the wisdom of the philosopher, or the accuracy of the scientist. The accredited-herd plan will make errors the same as flesh and blood and every plan devised by man. As the seed fails to germinate and the soil fails to function, and the tides overreach their normal ebb and flow, so will the accredited-herd plan fail to reach the acme of perfection; but if we veterinarians fulfill all our obligations, if we render to the accredited-herd plan and to the industry, with the health of which we are charged and have sworn to protect, the best services which we are capable of rendering, the accredited-herd plan will have so few errors charged against it that it will take its place among the human instruments devised by man for the perfection of man's worldly goods. If we co-operate with the same earnestness that the veterinary profession has co-operated in the extermination of other infectious diseases of the United States, the accredited-herd plan will have done more to raise the veterinary profession in the estimation of the live stock world and in the estimation of this nation and the nations of the world than any work it has ever undertaken. American veterinarians have assumed a great responsibility in undertaking to eradicate tuberculosis. They do it, not with the idea that it is an easy task, but that it is the most gigantic work ever assumed by them. Their aim is to eradicate tuberculosis from every pure-bred herd in America so that it may be on the accredited-herd list. In twenty years from now what will be the status of a herd that is not accredited? Will it be necessary to have a discredited-herd list? The accredited-herd plan is worthy of the support of the individual veterinarian, of the county association, of the state veterinary association, and of the greatest veterinary association of the world—the American Veterinary Medical Association.

When an area is freed of tuberculosis how shall we protect it against the invasion of diseased animals? It must be admitted that, if an area is freed of tuberculosis, it would avail little to the residents of that area unless some means were devised for preventing the introduction of tuberculous animals. If a county such as Island County in the State of Washington, or the District of Columbia, eradicates tuberculosis from its cattle, is it asking too much to put such territory in a little different status from counties or states wherein it is known that the disease exists to a considerable degree? If Idaho or any other state is freed of bovine tuberculosis, should it be kept in the same status as another state wherein tuberculosis exists among 30 per cent of the cattle? Today we have a federal regulation requiring the tuberculin testing of cattle for interstate shipment. Would it be justice to the live stock owners of a tuberculosis-free Idaho, to the live stock owners of Island County, Washington, or to the live stock owners of the District of Columbia, to require that their cattle shall be tuberculin tested before their cattle will be allowed to move interstate when no tuberculosis exists within their confines? It is true that those territories—the county, the state and the district referred to—are comparatively small units;

but there are other states representing more than one-half of the area of this country that are comparatively free from tuberculosis, and if is reasonable to expect that within the next ten years those states will be practically freed from the disease. Should we not be looking forward to the time when this area should be classed as free so that the movement of cattle interstate might be facilitated without any tuberculin test? Georgia now proposes to eradicate what little tuberculosis exists in the three northwestern counties of the state. What will it profit the owners in those three counties after they come through with the work and exterminate the disease, if they are required to have their cattle tested the same as cattle tested in states wherein the disease exists extensively? Starting at the Potomac River, going south to the Gulf of Mexico, and west to the California line, and going west from the Washington Monument, all that territory south of the Ohio River is comparatively free from tuberculosis. In addition to that, take Oregon Washington, Utah, Idaho, Montana, North Dakota, Wyoming, and Nevada, and possibly some others are states enumerated, tuberculosis exists comparatively free from tuberculosis.

In all that territory and within all the states enumerated, tuberculosis exists among the dairy herds recently established or herds of longer standing that were established with the seed foundation imported from other states. That is a very serious charge—that those states were free from tuberculosis until animals were imported into them from other states. The grounds upon which that statement is predicated is the experience of tuberculin testing all of the herds in that territory for a period of two years and the more extensive testing of herds in those respective states under the supervision of the state veterinarians. You can go into the native herds where no importations have been made and where the animals have not come into contact with herds containing recent importations, and no tuberculosis is found. Can any person question for one moment the right and duty of a state official having such conditions to employ every possible restriction and regulation to keep the disease out of his state? Why, he has the unanimous support of the live stock industry and he has the resources, the entire resources, of his state—physical and financial—to back him up in freeing the territory of the disease. What is his reward and the reward of the people going to be when they do get rid of the disease? Shall they be required, whenever they desire to ship an animal interstate, to have it tuberculin tested the same as other states where the disease has obtained a stronghold? Would it not be sufficient for those herds to be annually tested or occasionally tested, and it will be necessary to test them to be certain that the disease does not exist.

I submit to you the recommendation that as rapidly as territory is freed of tuberculosis it be designated as free territory and that the movement of cattle from that territory interstate, except cattle under local quarantine, be permitted without restrictions so far as tuberculosis is concerned. In ten years we should have in the United States an area approaching more than 2,000,000 square miles that will be virtually free of the disease. This will represent, in round numbers, two-thirds of the total area of the United States. This may seem visionary to some but it is not any more speculative than was the program outlined in 1906 for the eradication of splenetic fever of cattle. You will recall that at that time there was quarantined on account of the existence of cattle tick more than 700,000 square miles of territory in this country. The plans in operation for the eradication of the tick when the work was inaugurated were the rotation of pastures and the mopping of infested cattle with the grease rag. Both methods were later supplanted by a more modern and approved method: namely, the dipping vat which is now in universal use in the extermination of that disease. The point I wish to make, however, is that in 1906 it was known that the cattle tick could be eradicated and the bureau proclaimed that it was engaged in a campaign to exterminate that parasite from more than 700,000 square miles of territory within the Union. The end of that campaign is in sight as it is contemplated that the work will be practically completed well within five years from this date. I grant that is is very much easier to exterminate the tick from an infested area than tc

eradicate tuberculosis from a herd, but we have knowledge and confidence born of experience that the latter disease can be exterminated from a herd and that hundreds of herds have been freed of tuberculosis. Accepting those facts, as we are compelled to, we have confidence that wherever and whenever an owner and the manager and other persons in charge of a tuberculous herd earnestly determine to rid it of the disease and put into practice the same methods that have been tried and proved adequate, they will eventually succeed. It will be a difficult task but the effort will be crowned by victory when it is determinedly practiced. The responsibility for eradicating tuberculosis from individual herds rests upon the owners and persons in care of such herds. If they approach the problem without decision, without determination, and without carrying out all the practices that are absolutely essential for success, they will fail. If they leave in the herds tuberculous animals that are compromises of their own consciences, if they trifle with the results of the tuberculin test or any other reliable method of detecting the disease, they will fail. In every state today owners may obtain full instructions for eradicating tuberculosis.

The campaign is just in its infancy. No person can forecast the date when this great work will be completed—and it is unnecessary to make any estimate of how long it will take. It may be fifty years or a century before the end is in sight; but, what is a century if at the end of that brief space of time as compared with the ages that have passed and the time that is to come, the job is finished. If we pursue this campaign and it develops as it has progressed in the last two years, and we are working hand in hand, breeder with breeder, and veterinarian with veterinarian, there need be no apprehension as to the ultimate outcome and as this generation relinquishes its responsibilities and they are assumed by their successors we need have no qualms of conscience as to the estimate they will have of our ability and sincerity and temerity to have engaged in this enterprise; and what richer heritage can we bestow upon our successors than the preservation of the live stock of this nation which has been entrusted into the care of the breeders and the veterinarians during their reign upon this earth. Therefore, let us strive to be true to ourselves and show by our deeds that we were worthy of the trust imposed in us.

Abortion Disease and Its Control*

By J. F. DEVINE, Goshen, N. Y.

AT the 54th annual meeting of the A. V. M. A. held in Detroit in 1916 I read a short paper on the value of sanitation in controlling breeding problems. Since then I have had many inquiries, both verbal and by mail, as to the detail in carrying out such methods, consequently I have been prompted to prepare this paper to make it a matter of record in our report so that those who may be interested in this method as a whole may have it to refer to if they wish.

Realizing the enormous toll this malady exacts from animal husbandry, and conscious of the fact that our knowledge on the whole subject is too wanting to even afford an appropriate name, nevertheless I hold the same opinion that I have held for several years, and that is that the capable practitioner can render valuable service to our stockowners, even with our lack of knowledge while our faithful investigators are unraveling the mysteries of this scourge, a thing they will surely do if all interested will do their share in giving every assistance they can, either in furnishing material for examination or in faithfully making known their experiences.

This article will be confined to discussing the mitigation or control of so-called abortion disease, since I have an uncertain feeling as to its etiology and know but little about its pathology, and further I feel that if I knew all that others know about these things, I would still be lacking in positive knowledge of some of its phases. I am quite willing to admit that

*Presented at U. S. Live Stock Sanitary Association meeting, Chicago, Dec., 1919.

any method of control that I or anyone else may advocate at the present time must smack more or less of empiricism, since it must be based on clinical results rather than scientific facts, still as in treating a case of milk fever, I as a practitioner would rather get results and not know why I get them, than to know why and not get results.

If we stop here to review the present situation a little, we will find there is no agreement as to the cause of abortion, its method of transmission or the cause of re-abortions. It seems quite generally agreed that the gravid uterus or the fetal tissue, or both, form an ideal media for the growth and activity of the organisms that cause abortion, but what organisms are essential and how do they reach the uterus?

Some are of the opinion that the Bang organism is the causative agent, and while the gravid uterus is where it operates disastrously it lurks all too frequently in the udder waiting to attack the uterus as soon as conditions become favorable. Others believe abortion is due to a mixed infection through the vagina, and that after a healthy uterus is sealed the danger of further infection is past. Still others are quite positive that the cow is infected primarily at least by the digestive tract, and therefore infection by this manner may occur at any time.

Any opinion I may have in the matter must be based largely on reasoning from clinical experience.

If the pregnant cow is infected or re-infected from the udder, then I would be willing to concur in the opinion that the Bang organism is the sole cause of abortion, but my experience makes me doubtful at the present time since I have data of 37 herds numbering 1,110 animals in which first abortion ran in some herds as high as 47 per cent, and by sanitation and the proper cleansing of the uterus after abortion and subsequent attention to the vagina in herds where this method was followed faithfully, we have kept down re-abortion as low as no per cent in some herds and in no herd did re-abortions exceed seven and a fraction per cent. In one herd where 47 per cent of the herd aborted in 1917, in 1918 there was 100 per cent conception, the carrying of calves to full term and the physiological expulsion of the membranes after dropping normal living calves; while in several herds in the immediate neighborhood re-abortions would run from 11 to 33 per cent. Unfortunately I have no proof that the udders in all these cases were not free from the Bang organism, but it would seem ridiculous to suppose that they were, when udder infection seems so constant in infected herds, therefore, if second abortions are due to re-infection of the uterus from the udder, how can we explain the lack of repeated abortions in so many herds coming under my observation, where sanitation and the proper cleansing of the generative organs were carried out.

Similarly would sanitation and attention to the uterus prevent re-abortion if the most common method of infection is by the digestive tract. Sanitation might mitigate it and lessen the exposure, but it does not seem feasible that it could eliminate it entirely under ordinary conditions. My own conclusions drawn from my experiences are that either pathological changes in the generative organs occurring from an abortion not only influence or prevent subsequent conception, but also have to do with subsequent abortion or the pathological changes have to do only with the problem of sterility, and that the common source of infection is through the vaginal canal by organisms either independent or associated with the Bang organism, and that infecting or re-infecting of the uterus is preventable by sanitation and vaginal douching, both before and for a time after conception.

There is still another hypothesis. Two of our ablest workers, Schroeder and Cotton, seem quite confident that re-infection of the uterus with the resultant endometritis, takes place from the infected udder after conception, and whether a cow shall abort a second time depends upon certain things; one being whether or not she has acquired sufficient immunity from the first abortion to resist the second, or again possibly the damage sustained in the uterus by the first abortion would influence the likelihood of a second abortion. If the latter theory be true, it would be entirely reconcilable with what I advocate in the proper cleansing of an infected uterus immediately after parturition.

Notwithstanding that we are still so much in doubt about these matters it is

my belief that this malady and its resultant disturbances of the generative organs can be reduced to a minimum by:

1. Sanitation.
2. Isolation.
3. The proper cleansing of the uterus when gestation ends, let it be what period it may, and further vigilant attention to the vagina. Next to preventing infection this is the most vulnerable and important point in the whole cycle to attack the virus and mitigate the severity and extension of the infection in the genital tract.
4. The proper treatment of the pathological changes occurring in the genital organs which inhibit conception.

The infecting of a healthy uterus, abortion, spreading of virus, retention of membranes, pathological changes in the uterus, cervix, tubes and ovaries, and subsequent sterility, constitute a cycle that must be attacked either at the port or ports of infection (let it be udder, vaginal or per os) or the genital tract immediately after an animal has aborted, to correct so far as possible the pathological changes rather than allow their extension.

Sanitation

This is to be applied in its fullest sense where infection is known to be present. The entire stables are to be kept scrupulously clean, applying daily a reliable disinfectant or burnt lime to all exposed floor space that is soiled by bowel or vaginal discharges, after all litter and sticky discharge have been removed from the posterior parts of the platform of the standing stalls. The entire platform of standing stalls, and the floors of box stalls should be kept clean enough to meet good sanitary dairy methods and permit proper disinfection.

Should conditions or weather prevent daily scrubbing of these places, they should be kept well limed and heavily bedded, and thoroughly cleaned at least once every four or five days. Paddocks or yards should be cleaned, scraped and limed daily and the yards re-graded with soil or gravel as often as required.

Isolation

Some question the value of isolation. I believe isolation of prime importance in the control of this disease when applied intelligently and diligently. My experience in practice has been quite in keeping with the statement of Schroeder and Cotton, in their paper read at the Detroit meeting in 1916. I regard the pregnant cow or one that has recently aborted as a carrier and a dangerous animal; consequently all pregnant cows during the season they are housed should be housed if possible in separate box stalls where they cannot contaminate one another or infect animals just bred or about to be bred. Similarly the exercising yard should be divided into paddocks where again the pregnant ones can be kept by themselves or still better in separate paddocks for each one as much as possible, and positive isolation of any of them showing a suspicious vaginal discharge; such an animal to be kept completely and permanently isolated until such a time as she has calved and may be considered safe. Obviously the pasture fields are less dangerous than the stable or yards, but even here there is an element of danger, and the separation of the pregnant cows should be as complete as practicable.

Where it is impracticable to keep the pregnant and non-pregnant animals separate in an infected herd, great care should be exercised in keeping a close watch on the pregnant ones and any suspicions of abortion should mean the prompt isolation of such an animal.

While it is true that occasionally the uterine seal may become penetrated and an animal discharge virus for a time without being noticed, still such cases are the exception and surely the removal of such an animal as soon as she is noticed, is better sanitation than to allow her to remain in the herd as a living manufacturer and spreader of virus for days or weeks after aborting. Heifer calves should be held in strictest isolation from mature animals from birth until after first parturition, as should all new females brought into the herd.

Proper Cleansing of the Uterus When Gestation Ends

The technic of properly cleansing an infected uterus will vary but slightly in accordance with the severity of the infection and the period of gestation at which the animal aborts.

It is common knowledge which is rather inexplainable that when an animal aborts in early pregnancy there is usually less inflammatory change and metritis, than

when one aborts later. This at first sight appears paradoxical, as it would seem to indicate that the infection might be greater or the resistance of the mother less to cause such early shock, death and expulsion of the fetus. Possibly the explanation is that the fetus offers less resistance at the period. However, the fact remains that when the fetus is expelled at two, three, or four months there is evidently but a slight cotyledonitis and placentitis, since ordinarily the membranes are easily and promptly expelled. When abortion occurs later in pregnancy, in addition to cleansing the uterus, we usually also have the problem of handling a retained placenta, and we not infrequently have just as severe metritis, cotyledonitis and placentitis where a strong rugged middle-aged cow carries her calf full term in spite of the infection, but still retains her membranes. Since there are various degrees of infection, the principal variations in treatment will be as to the duration of the period when a skilled veterinarian must give daily attention and consequently, we will discuss the treatment of endometritis, cotyledonitis and placentitis under the heading of "Retained Placenta."

Retained Placenta

When a placenta is retained it is an indication that there must be more or less unnatural adhesions between the fetal membranes and the internal surface of the uterus. It has been the custom for years for both empirics and trained veterinarians when called to attend these cases, to remove all or part of the membranes by manipulations, commonly spoken of as "unbuttoning." The rugged grade cow with a hardy constitution even under the roughest of handling usually withstood this ordeal, often never missing a feed or decreasing very much in her milk flow. Even some pure-breds withstood this crude handling pretty well until the organic changes caused by the seemingly increased virulence of microbic invasion became so severe as to apparently heighten the susceptibility to infection and absorption in our pure-breds.

First, let me say that we should never use force to remove a placenta from the uterus of a pure-bred or delicate high grade cow. It is true that occasionally we are called to see an animal with a retained placenta where adhesions are very slight, with only a pinching of the membranes at the extreme end of the cornua or slight adhesions of a few of the cotyledons, which is soon released by very little manipulation and the animal is thereby relieved practically as normally as though the membranes had been discharged without aid; but where the adhesions are more extensive it is my judgment after twenty years' experience that the man who will persist in the old method of "taking them away" will come to grief sooner or later. It matters not how skilled a man may be, puerperal septicemia with all its dangers is sure to overtake some of his patients. The method of removing a placenta and cleansing a uterus that I prefer, is douching of the membranes with a warm physiological salt solution, except where a putrid condition exists (in the latter case I may use a mild antiseptic for one or two douchings, rinsing the uterus with the salt solution after), until every shred has been washed away. Some membranes should be allowed to hang through the os or it should be plugged with sterile gauze as this will retard its contraction, and it is well to loosen all membranes if possible before the os contracts so much as to prevent the introduction of the hand. It seems almost superfluous to add that the membranes should not be allowed to hang out of the vagina thereby keeping the tail and hind parts soiled and also answering as a bridge inviting organisms into the uterus, but cut off so that they simply hang through the os; and common decency demands that the tail, hind quarters, and udder be kept clean so as to avoid contamination of the milk and the internal structure of the udder. We will find that after two or three days of douching, the capillaries of the cotyledons and the endometrium contract and assume more firmness thereby lessening the danger of re-absorption, and the adhesions between the membranes and the cotyledons gradually give way so that by gentle manipulation they can usually be removed completely with safety in from three to seven days. By this method we will find that at no time will we have the foul smelling sanguino-purulent uterine content that we do have when the membranes are neglected, neither will we have the soft friable decomposing uterus that is so dangerous to touch and that so often leads on to metro-peritonitis and death.

With rare exceptions there is no true growing together of the maternal membranes and fetal cotyledons, it is simply a resultant swelling from the inflammatory condition that dove tails them, so to speak, so tightly that the tufts of the chorion are held firmly to the maternal cotyledons. This being so with our present knowledge of surgery and asepsis, would not hot douching to sooth, cleanse and loosen these membranes be a reasonable thing to do?

I appreciate that in douching a uterus where the membranes are still adherent that we are not douching the utero-chorionic space over its entire surface, but our hot solution is coming in contact with the inner surface of the membranes and also the inner surface of the uterus where there has been the greatest amount of infection and where there is the greatest amount of endometritis; namely, that portion near the cervix where necrosis has so often completed the separation of the chorion from the cotyledons, and as all experienced workers know we are actually cleansing the parts that need it most, since it is quite the custom of all practical men in beginning to douche a uterus, to roll up the loosened shreds into a rope to avoid their interference with the douching and syphoning out, and in this way the hot solution flows behind the loosened membranes and comes in contact with the inflamed endometrium. There are certain things to be taken into account if the douching of a uterus is to accomplish the desired results; and again there are certain uteri that should not be douched, and every veterinarian should know this before he attempts this character of work.

First, there is no excuse for douching a uterus immediately after parturition unless it has become in some way seriously infected by manipulation or a decaying fetus. Time should be given for the uterus to do its share as far as it can, by its germicidal secretions.

Second, a ruptured uterus obviously should not be douched. There is usually no excuse for this careless act; nevertheless it is sometimes done. We should first carefully cleanse the external genitals and make a cautious examination of the uterus before beginning treatment or the handling of it. This is not only true in douching, but also in cases of dystocia.

Let me remind you that there are more uteri ruptured where parturition is obstructed, by the labor efforts of the cow where by force of the diaphragm and abdominal muscles the fetus is jammed in the bony cavity and the membranes ruptured, allowing the fluid to escape, thus exposing the extremities of the fetus directly against the internal surface of the uterus at a time when it is greatly distended and in the throes of labor, than are ruptured by capable veterinarians in handling dystocia.

Even with the fetus in the uterus, ruptures can usually be located if a proper careful examination is made, since at least 90 per cent of all ruptures are either in the fundus or in the superior part of the gravid horn. This is quite obvious when we consider, as we have said, that these are the parts that come in contact with the bony cavity and are forced upward and backward by the softer organs.

Naturally there is nothing to interfere with a careful examination after the fetus has been delivered and we are treating the membranes only, and this examination should be made before we douche the animal, and not after. True, the greater the distention naturally the thinner are the walls, but any one with obstetrical experience knows that the uterus is rather a strong organ and will stand considerable handling in removing the fetus, or in replacing an everted uterus, it is naturally stronger twenty-four hours later when the walls have contracted and thickened somewhat, and for an intelligent operator to rupture such a uterus which has withstood the natural labor forces, with his hand, a soft rubber hose and water, seems beyond reason.

Third, there is still another condition under which we are not justified in douching the uterus and that is when we are called to see an animal that has freshened several days before, where the membranes have been held and the uterus either has received no attention and the membranes have undergone decomposition, or where the membranes have been forcibly removed, thereby leaving a raw surface allowing absorption of the putrid uterine content: in either case we are apt to have a resultant metritis or metro-peritonitis, accompanied with decomposed uterine walls that have no more strength than paper.

If we examine such a uterus we will find the walls almost as putrid as the content. They are lifeless, slimy or friable and decomposing, in such a condition that the weight of one's finger almost penetrates. I would like to ask what percentage of such cases live with or without douching.

The first day or two but little can be done through the rectum to aid the douching or syphoning, as a matter of fact this is fortunate as the less the cow is irritated the better she is off. It would be well if we could forget, so to speak, the retained placenta, and let it take care of itself, for a day or two the one thought should be to cleanse the uterus of all exudate and debris thoroughly, but as gently as possible. Supervise the feeding of the cow, see that she has laxative food and succulence if possible. If she is not vigorous in every way, stimulate her all she will stand with such drugs as alcohol, nux vomica, and capsicum.

As the inflammation of the uterus begins to subside, the uterus will begin to involute so that after a few days the cornuii can be grasped with the hand through the bowel, and as the irrigating solution is pumped in with force it may be gently massaged to all parts of the uterus and squeezed out again which seems to materially tone rather than harm the uterus.

This method of irrigation of the uterus proper may be continued as long as the os is sufficiently dilated to admit the hose or catheter.

There is just one danger in douching a uterus of this character that to caution one with veterinary training to guard against seems little short of ludicrous, and that is if the cervix is so contracted that the tube fills its entire lumen leaving no space for the return of the fluid from the uterus as it is pumped in, and one does not stop pumping when it is filled and press out the fluid, but rather keeps on pumping, it is entirely within reason that one might accomplish what they are apparently bent on, that is, rupturing rather than cleansing the uterus.

Another thing that cannot be repeated too often or emphasized too strongly, is that an uterus should be douched only while it still has life and tone. Douching then will not only cleanse but also stimulate it to early recovery and when infection is severe this cleansing should not be delayed any longer than 36 hours after calving. Twenty-four hours is better.

After an uterus has lost tone and has begun to degenerate it is best to leave it alone, and devote all the attention to improving the physical resistance of the animal.

Thorough cleansing of a recently gravid uterus cannot be accomplished with a few quarts of lukewarm water. The water should be as hot as one can work in comfortably with the bare hands, and may require ten or fifteen gallons to be carried by a hose in the hand as far as one can reach, and never under any circumstance is the hose to be released from the cover of the hand.

This douching can be done daily or twice daily, until the uterus is absolutely clean so far as is perceptible by the appearance of the fluid returned, without in the least disturbing or irritating the most delicate cow, providing due care is taken.

We occasionally find an animal with such an acute cervicitis that when the cervix is touched she gives evidence of severe pain, followed by violent straining. After douching such animals it has been my custom for years, to dry the cervix with cotton, swab it with tincture of iodin and inject into the uterus and vagina a quart of warm olive oil to which has been added two ounces of tincture of opium. This is to be repeated after each douching as often as necessary. There may be better ways of handling these cases, but this method has served me well.

A rather crude but practical barometer as to when we may discontinue douching the uterus proper, is when it is cleansed of all debris and a thick catarrhal exudate appears. From then on we should devote our attention to douching the cervix and keeping the vagina clean.

It is my custom to leave this part of the work practically entirely to the owner or herdsman. Some veterinarians seem to object to this method, all that I can say is that I have done this for close on twenty years and still think well of it.

The vagina is to be douched daily with a hot solution until all discharges cease. The veterinarians should make an examination about once a week to determine progress and give any necessary attention or instructions. If there are vaginal com-

(*Continued on page* 25)

Production and Use of Anti-Hog Cholera Serum

By WALTER J. LOPP, D. V. S., East St. Louis, Ill.
Member Associated Serum Companies of America.

ON March 4th, 1913, the United States Department of Agriculture enacted laws and regulations requiring all serum companies engaged in interstate shipment of anti-hog cholera serum and virus, to operate under a government license issued by the Secretary of Agriculture.

There are no records available that show the total amount of serum produced up until 1915. The total amount produced in all U. S. licensed establishments in 1915 was 208,571,323 cc. In 1916 the total amount produced was 222,786,853 cc., an increase of 6.62 per cent over 1915. In 1917 the total amount of production was 250,041,290 cc., an increase of 14 per cent over 1916. In 1918 the total amount produced was 538,306,474 cc., an increase of 111 per cent over 1917. In 1919 the total amount of production up to September 1, was 475,102,287 cc., and as an estimate this year's production will not exceed 600,000,000 cc., which would make an increase of 13 per cent over 1918.

The total number of hogs in the United States, January 1, 1915, was 64,618,000. Of this number, 4,171,424 could have been vaccinated, using 50 cc. as an average dose, or about 6.45 per cent. The total number of hogs in the United States January 1, 1916, was 67,766,000, of which 4,455,337 were vaccinated, or about 6.57 per cent, an increase over 1915 of .12 per cent. The total number of hogs in the United States, January 1, 1917, was 67,543,000 of which 5,000,826 were vaccinated, or 7.41 per cent, an increase over 1916 of .84 per cent. The total number of hogs in the United States, January 1, 1918, was 71,374,000, of which 10,566,137 were vaccinated, or about 14.80 per cent, an increase over 1917 of 7.39 per cent.

The total number of hogs in the United States, January 1, 1919, is estimated as 75,000,000, also an estimate of 400,000,000 cc. will be used. The number of hogs vaccinated this year, figured on the above basis, would be 8,000,000, or 10.67 per cent, a decrease from 1918 of 4.13 per cent in vaccination.

In 1913, 6,064,470 or 9.91% of the hogs in the United States.
In 1914, 6,304,320 or 10.68% of the hogs in the United States.
In 1915, 5,541,971 or 8.57% of the hogs in the United States.
In 1916, 4,057,824 or 5.99% of the hogs in the United States.
In 1917, 2,959,322 or 4.38% of the hogs in the United States.
In 1918, 2,701,825 or 3.78% of the hogs in the United States.

The decrease in the use of anti-hog cholera serum the past twelve months, in my opinion, is due to the hemorrhagic septicemia and mixed infection bacterins which have been placed on the market the last few years and have been very extensively advertised by the various biological companies.

About one year ago a large percentage of the veterinarians and some serum companies apparently forgot that there was such a thing as a filtrable virus and hog cholera, and without making a differential diagnosis started using one of these two bacterins where sick hogs were found. I believe we will all agree there is a disease called hemorrhagic septicemia, but it is not so extensively scattered nor mortality as high as it has been advertised by some companies. The term "mixed infection" is a very bad term to apply, as it might signify almost anything and does not mean any certain disease. It is apparent from the results that have been obtained from the use of these two products, that they are rapidly losing ground and will not be used so extensively in the future.

The outbreaks of hog cholera were greatest in 1914 and during that period 6,304,320 hogs dies of cholera. Since that date the percentage of loss has decreased from a 10.68 per cent loss to a 3.78 per cent loss in 1918. The increased use of U. S. released serum has evidently been a great factor in conserving the pork supply of the country.

Anti-hog cholera serum is a protection to the swine industry when properly administered, and the proper time for such vaccination is prior to the appearance of cholera in a herd. Hog cholera is worse

some years than others. The disease comes in cycles and that year when the hog raiser believes he will not be bothered with cholera may be the time when his worst losses occur. The United States government appreciates the value of the use of serum as a preventive for cholera and the hog raiser can best protect his herd by vaccinating regularly each year and not trusting to luck that his hogs will pull through without cholera.

Of the 75,000,000 hogs in the United States this year, an estimate of 8,000,000 hogs were vaccinated with anti-hog cholera serum. In the past, the swine grower in some sections has vaccinated only when cholera appeared, so the value of extensive vaccinating before hogs become sick with cholera cannot be overestimated. In some localities, veterinarians have a standing list of clients and each year they call on them, ascertain the number of hogs they have, set a date for vaccination and vaccinate the herds regularly. This is a great service to the swine grower, methodically protects the marketable supply of pork, and should be an excellent practice in all hog-raising communities.

The use of serum should be methodical and regular each season in order to guard against the cholera. A decrease in vaccination merely encourages an outbreak of cholera and vaccinating is the only reliable insurance against cholera.

World War Veterinarians of America

The realization of a plan, whereby all former army veterinarians, who saw service at home or abroad in the late war, could be banded together into a permanent organization, was brought about the first week in December in Chicago. Months ago while the writer was still in France, the plan took shape in the form of a nebulous idea and, while nothing concrete was done at that time, it was felt by a number that such an organization would certainly have its desirable features.

In Chicago and at New Orleans at the A. V. M. A. meeting the idea found instant response. The laborious work carried on in Washington in 1917 by some of our leading veterinarians brought about the development of the present highly commendable and efficient veterinary corps. The fruits of this work must not be allowed to deteriorate and, if possible, improvements should be made. It was with this idea in mind that the foundation for the society of World War Veterinarians of America was laid in Room 103 at Hotel La Salle, December 3, in Chicago. A number of very enthusiastic ex-service veterinarians attended this first meeting as well as a number of active army veterinarians. The sincerity with which every one spoke was proof that a genuinely patriotic, one hundred per cent American organization was being perfected, for the enthusiasm and loyalty expressed could not be misinterpreted by the most skeptical. The purpose of the organization, the good influence it could bring to bear and the reception it would receive at the hands of the public were discussed pro and con, and only one conclusion could be arrived at, viz., that the organization should be encouraged and an earnest, strong effort be made to recruit every ex-service veterinarian and every other veterinarian of military experience in the World War as members and to make the strength of the organization felt.

The selection of officers resulted in the unanimous election of the following three: Col. L. A. Merillat, Orville, Ohio, National Commander; Capt. J. V. Lacroix, Evanston, Ill., Asst. Commander; and A. A. Leibold, Kansas City, Kansas, Adjutant, these positions corresponding respectively with president, vice-president and secretary-treasurer.

Since this organization has at heart primarily the welfare of the Veterinary Corps of the United States Army, a statement to that effect was placed on the minutes as the purpose of the organization. Thinking that the expression was broad enough to embody all the possible beneficial influences, it was thought desirable to attempt to select a name for the organization embodying these sentiments. Five or six suggestions

were made by various men present and after considerable discussion and weighing the virtues of the various suggestions, the name "World War Veterinarians of America" was decided upon, since this would stamp us as an independent organization and not subsidiary to any other, although every one felt that it was our duty to seek the co-operation of any and every other organization in the United States that could be of assistance to us in carrying out our object.

The fact that there would necessarily be some expenses incurred in the way of postage and stationery in carrying on the correspondence of the organization, it was decided to temporarily tax every member fifty cents to help defray the expenses.

The officers elected were instructed to begin work at once to draft a constitution and by-laws, which should be ready for consideration at the next meeting, the date and place of which was not decided upon but which is planned to be in the near future. No unnecessary delay is looked for to make this a working organization and every ex-service veterinarian, no matter whether he held a commission in the army or was an enlisted man, is encouraged to enroll as a member of this organization. Active army veterinarians are likewise invited to enroll. A certain degree of hesitancy to join the organization has been found among some ex-service veterinarians, who were unfortunate in not receiving a commission and consequently served as enlisted men. We entreat such men to show the broad vision that we know they possess and to forget the incidences that were unpleasant to them. War is never pleasant and everyone in it worked to bring it to an end for that express reason. We are anxious to carry on the work of our new born organization and allow it to give full vent to its powers. Potentially this organization is strong and it is hoped that every ex-service veterinarian will join at once and lend his aid to the betterment of the Veterinary Corps of the U. S. Army.

Communications are requested to be addressed to Dr. A. A. Leibold, 512 Portsmouth Building, Kansas City, Kansas, or to the other officers.

A. A. L., Adj.

OFFICERS VETERINARY CORPS, UNITED STATES ARMY

Temporary Rank

Authorized by Congress in Bill Providing 18,000 Officers Until June 30, 1920

	On duty Oct. 11, 1919	On duty Nov. 11, 1919	On duty Dec. 11, 1919
Colonels	0	0	0
Lieut. Colonels	5	4	4
Majors	43	40	37
Captains	77	75	72
First Lieuts.	167	160	156
Second Lieuts.	86	74	72
Totals	378	354	342

OFFICERS VETERINARY CORPS, REGULAR ARMY

Permanent Rank—Act June 3, 1916

	On duty Dec. 11, 1919
Majors	7
Captains	17
First Lieuts.	21
Second Lieuts.	47
Total	92

The following orders of transfer and reassignment have been issued for veterinary officers:

1. Major B. A. Seeley, U. A., from Camp Upton, N. Y., to Remount Depot, Camp Meade, Md., for duty as Camp Veterinarian.

2. Major G. H. Dean, U. S. A., having completed his instruction in meat inspection, is relieved from duty with the Zone Supply Officer, Chicago, Ill., and assigned as Camp Veterinarian, Camp Bragg, N. C.

3. Major A. L. Mason, U. S. A., General Veterinary Inspector, with headquarters at Kansas City, Mo., has been relieved from his present station and directed to proceed to Washington, D. C., for station and duty as General Veterinary Inspector in that territory formerly covered by Major J. P. Turner and Lieut. Col. G. E. Griffin, U. S. A., which embraces the entire Atlantic seaboard states.

4. Major W. R. Pick, U. S. A., General Veterinary Inspector from Ft. Worth, Texas, to San Antonio, Tax., for station to act as general veterinary inspector for the states of Texas, Oklahoma, New Mexico, Arizona, Montana, Wyoming, Idaho, Utah, Nevada, Washington, Oregon and California.

5. Major T. H. Edwards, U. S. A., from Auxiliary Remount Depot, Camp Jackson, S. C., to Auxiliary Remount Depot, Camp Gordon, Ga.

6. Lieut. Col. R. Vans Agnew, U. S. A., from duty as Post Veterinarian, Ft. D. A. Russell, Wyoming. to Camp Dodge, Ia., for duty as Division Veterinarian, 4th Division and Camp Veterinarian, Camp Dodge, Ia.

7. Major G. H. Koon, U. S. A., from duty as Division Veterinarian, 4th Division, Camp Dodge, Ia., to Zone Supply Office, Chicago, Ill., for instruction in meat inspection.

8. Major H. S. Williams, U. S. A., on expiration of leave of absence, is assigned as Division Veterinarian, 6th Division, Camp Grant, Ill.

9. Major A. E. Donovan, U. S. A., Division Veterinarian, 6th Division, on being relieved by Major Williams, is directed to proceed to Siberia for duty as Chief Veterinarian, American Forces in Siberia.

1. Captain J. A. McKinnon, Chief Veterinarian, American Forces in Siberia, upon the arrival of Major Donovan, is relieved from duty and directed to proceed to the United States for assignment.

2. Captain J. R. Stifler, from Camp Taylor, Ky., to Kansas City, Mo., for duty with the Purchasing Quartermaster that place.

3. Captain C. B. Dunphy, from Hq. Southern Department, Ft. Sam Houston, Tex., to Chicago, Ill., for instruction in meat inspection.

4. Captain E. P. Coburn, from Camp Dodge, Ia., to Kansas City, Mo., for duty with the Purchasing Quartermaster that place.

5. Captain E. P. O'Connell, from Remount Depot, Camp Devens, Mass., to Chicago, Ill., for instruction in meat inspection upon the closing of the Remount Depot at Camp Devens, Mass.

6. Captain E. J. Cramer, upon the closing of Remount Depot, Camp Custer, Mich., is directed to report to Chicago, Ill., for instruction in meat inspection.

7. Captain H. N. Beeman, upon the closing of Remount Depot, Camp Sherman, O., is directed to report to Camp Sherman for duty as Camp Veterinarian.

8. Captain H. H. Howe, from duty as Camp Veterinarian, Camp Sherman, O., to Remount Depot, Camp Gordon, Ga., for duty.

9. Captain J. L. Ruble, from Remount Depot, Camp Gordon, Ga., to Chicago, Ill., for instruction in meat inspection.

10. Captain G. W. Brower, recently returned from duty as Department Veterinarian, Philippine Department, is directed to proceed to Chicago, Ill., for instruction in meat inspection.

11. Captain E. C. Conant, from Remount Depot, Ft. Keogh, Mont., to duty as Transport Veterinarian, U. S. A. T., "Dix," Seattle, Wash.

12. Captain V. B. Wright, from duty as Transport Veterinarian, U. S. A. T., "Dix," to Remount Depot, Ft. Keogh, Mont.

13. Captain H. R. Wise, recently returned from duty overseas, is assigned to duty with the 2nd Division, Camp Travis, Tex.

14. Captain J. P. Divine, from Port of Embarkation, Hoboken, N. J., to 6th Division, Camp Grant, Ill., for duty.

15. Captain J. W. Crouse, upon the closing of Remount Depot, Camp Dix, N. J., is directed to proceed to Chicago, Ill., for instruction in meat inspection.

16. Captain K. F. Hinckley, upon the closing of Remount Depot, Camp Lewis, Wash., is directed to proceed to Chicago, Ill., for instruction in meat inspection.

17. Captain W. H. Dean, having completed the course of instruction in meat inspection at the Zone Supply Office, Chicago, Ill., is transferred to Ft. Jay, Governors Island, N. Y., for duty as the Post Veterinarian.

The A. V. M. A. Meeting at New Orleans

NOT much remains to be said regarding the A. V. M. A. meeting other than what was told in our December issue. The weather continued clear and warm throughout the meeting and added much to the enjoyment of those attending. By the last day of the meeting, the attendance had probably exceeded the estimate of 500 set upon it last month, but including about 120 ladies, could scarcely have reached 600. This was very good, however, for a meeting remote from the geographical center of the veterinary population of the country.

Unfortunately, but little interest appeared to be taken in the section on practice, which was called to order only twice. On the first occasion, a single paper was presented, one on "Intussusception of Intestines," by Dr. J. M. Frost of the State Veterinary College at Ithaca, N. Y. This was an excellent paper and was thoroughly discussed by practitioners present. The others on the program for this meeting were not present. The practice section was called together two days later but adjourned without any papers being presented.

The general session at which the army veterinary service was discussed, proved easily the climax of the meeting. Papers were presented by Colonel Marshall of Philadelphia, Colonel H. E. Bemis of Ames, Iowa, Colonel D. S. Tamblyn, of Regina, Sask., Major G. A. Lytle of

Chicago, and Dr. W. Horace Hoskins of New York City. The papers were further discussed by a number of veterinarians, including Colonel R. J. Stanclift and Major R. J. Foster of the Surgeon General's office, Colonel D. S. White and Colonel Merillat, both of Ohio. Dr. Hoskins' paper was a severe arraignment of the management of the veterinary corps during the war and a bitter criticism of Drs. Marshall, White, Klein, and a number of others among the higher officers in the veterinary corps whom he did not name. It precipitated a discussion exceedingly acrimonious that ended in Dr. Hoskins' paper and all discussion referring to it, being expunged from the minutes and the records of the association.

One entire evening session was given over to showing moving pictures of the activities of the veterinary corps at home and abroad, including the veterinary hospitals at St. Nazaire, Neuf Chateau, Givres, France; meat inspection for the army at the port of New York; meat and dairy inspection in Chicago. The exhibit of army veterinary chests and other paraphernalia of veterinary officers and army veterinary hospitals was one of the attractive features of the meeting. Colonel R. J. Stanclift and Major R. J. Foster of the Surgeon General's office were constantly present at the exhibit, explaining, describing and showing the purpose of the various articles that went to make up the exhibit and acting as a "general information bureau" on army veterinary matters.

There are many things of interest to see in New Orleans, and no meeting of the A. V. M. A. has offered more enjoyable social features than this one. No itinerary of sight seeing was prearranged for the men and very little was planned for the ladies; thus visitors were permitted to group themselves as they saw fit and see the things in which they were most interested, and this is the best possible way to entertain a convention.

The Pittman-Moore Company of Indianapolis, however, gave the visiting veterinarians and their wives a boat trip on the Mississippi river—certainly a most enjoyable affair. Practically everyone took this trip and surely none regretted it.

On the last day of the meeting, it was voted to remove the Cincinnati Veterinary College, the McKillip and St. Joseph Veterinary colleges from the list of accredited schools, because these schools do not maintain the entrance requirements exacted by the association for schools whose graduates are acceptable for membership.

Earlier in the meeting, as announced last month, Dr. John R. Mohler, Chief of the Bureau of Animal Industry, had stated that the U. S. Department of Agriculture, Bureau of Animal Industry, and the U. S. Civil Service Commission, had adopted the same regulations as to entrance requirements for veterinary colleges that the A. V. M. A. has adopted. The indications are that veterinary examining boards in the more important veterinary states will adopt the same standard for those permitted to take the examination and practice in those states.

At the meeting of the executive board, Dr. W. H. Dalrymple tendered his resignation as editor and manager of the official journal of the association, and Dr. John R. Moler of Washington, D. C., was elected to this position. As stated last month, Dr. C. A. Cary was elected president; Dr. N. S. Mayo, secretary; and Dr. M. Jacob, Knoxville, Tenn., treasurer.

The following were chosen as Vice-presidents:

Lieut.-Col. J. H. Gould, U. S. Army; Dr. E. A. Watson, Lethbridge, Alberta, Canada; Dr. E. P. Flower, Baton Rouge, La.; Dr. A. Eichhorn, New York; Dr. A. S. Cooley, Cleveland, Ohio.

HUMANE DISPOSITION OF BLIND ARMY ANIMALS.

As a result of recommendations originating with Major John P. Turner, when he was serving as a General Veterinary Inspector, which were strongly concurred in by the Veterinary Division, Surgeon General's Office, the War Department recently changed the regulations regarding the sale of blind army animals. For humanitarian reasons, solely, blind animals, even if otherwise serviceably sound when inspected and condemned, will not be sold but will be killed.

More Than 400 Veterinarians Attend Illinois Meeting

THE Thirty-seventh annual meeting of the Illinois State Veterinary Medical Association, held in Chicago, December 5, 6 and 7, was the most largely attended meeting in the history of this, the oldest state veterinary association in the United States. More than 400 members and visiting veterinarians were present, and counting the students from the Chicago veterinary colleges, more than 500 attended some part of the meeting. An unusually large number of veterinarians from other states stayed over in Chicago for a day or two after the close of the U. S. Live Stock Sanitary Association meeting, and attended one or more sessions of the Illinois meeting.

The program was eminently practical all the way through and appreciated by those who attended, for they were almost exclusively practitioners. The following papers were presented and discussed:

"Practical Practices for the Practitioner," W. H. Welch, Lexington.

"Treatment of Pink Eye in Cattle," L. N. Morin, McLean.

"Poultry Practice and Its Possibilities," T. J. Foster, Monticello.

"Preparation of Specimens for Laboratory Examination," W. G. Keehn, Chicago.

"Retention of Fetal Membranes in the Cow," Charles Schmitt, Dodgerville, Wis.

"Mycotic Stomatitis in Cattle," S. S. Doherty, Murphysboro.

"Flavine and Its Uses in Veterinary Practice," C. A. Zell, Chicago.

"How I Handle Infections of Swine," W. F. Brownlee, Kirkwood.

"What I Do for So-Called Mixed Infection in Swine," Roy E. Kluck, Forreston.

"Principal Parasites Affecting Swine," T. A. Sigler, Greencastle, Ind.

"Milk Sickness with Specimens from Cases," C. E. Lucas, Olney.

"Report on the Use of Chloral Hydrate Intravenously for Anesthesia," S. F. Behner, Marshall.

Although all parts of the program were good, even for this association which is accustomed to good programs, there were three outstanding features of the meeting which will long be remembered by those in attendance. First, the annual address of President Merillat. This was an intimate account of Colonel Merillat's entire experience in the army, beginning with the receipt of his commission as major in Chicago, continuing briefly with his experiences at Camp Green and Camp Upton and dealing in a most interesting and highly entertaining manner with his unusual experiences in France, on the Franco-American Veterinary Liaison Mission, his work as Chief Veterinarian of the first army, his experiences in the St. Mihiel and Argonne battles, his later work after the signing of the armistice, and his experiences at the famous. Alfort Veterinary College near Paris, where he spent several weeks just prior to his return to the United States and receiving his discharge in Washington. It was such an account as one could give only to his intimate friends, and it will not be forgotten by the veterinarians of Illinois, all of whom are Colonel Merillat's intimate friends.

The second outstanding feature of this meeting, which for practical value to the hearers has probably not been equalled at any other meeting, was the discussion on the treatment of abortion by Doctor J. F. DeVine of Goshen, N. Y. For more than two hours during the second day of the meeting, Doctor DeVine was kept on the floor telling how he meets the problems of contagious abortion and sterility in the pure-bred herds of the east, and replying to questions of those in attendance anxious to secure further information.

Clinic.

On the third day of the meeting, a clinic was held at the Chicago Veterinary College and the subject of contagious abortion in cattle was again the topic of first importance. At the clinic, which was handled by Dr. J. G. Jungerman of Hiawatha, Kans., a number of animals were used in demonstating the treatment which Dr. Jungerman has found applicable in his locality where the herds are largely of the beef type and differ greatly from those that Dr. DeVine has been treating.

(*Continued on page* 28)

DEPARTMENT OF

BOVINE PRACTICE

Edited by JOHN FRANCIS DE VINE, D. V. S.

Acute Metritis and Acute Metro-Peritonitis

THE term metritis, like endometritis, is somewhat loosely used to designate various inflammatory and circulatory changes in the body and horns of the uterus. It is most commonly the result of severe puerperal infection extending from the endometrium into the tissue of the uterine body and usually involving its peritoneal covering more or less, and is ordinarily dependent upon neglected, decomposing, or improperly handled retained placenta, less often but not infrequently occasioned by injury or infection to the uterine cavity associated with cases of parturition requiring assistance, particularly those cases of dystocia due to torsion of the uterus or an emphysematous fetus.

SYMPTOMS: Clinically this is one of the most irregular, uncertain, and treacherous pathological conditions associated with parturition. The severity of the infection, the extent of the area involved and the constitution of the animal would appear to be logically the three factors to govern its advancement or termination; however my experience leads me to believe that the resistance of the individual animal has more to do with its subsidence, or its progress to puerperal septicemia and death than has the character and extent of the infection.

I have repeatedly had occasion to examine cattle, particularly pure-breds, where the objective symptoms appeared to be comparatively mild. Examination of the uterus also revealed what appeared to be a rather mild inflammatory condition, and still such an animal would rapidly develop a temperature of perhaps 106° F.; loss of appetite; suppression of the milk flow; constipation or diarrhea; loss of flesh, as if it were melting away; complete and absolute anorexia, oftentimes not even taking a drink of water; pain on pressure over the uterus, the soreness so intense as to discourage lying down; grunting; moaning; grinding of the teeth; the eyes become sunken; the ears drooping; the animal listless, finally lying down from exhaustion; living perhaps a day or two and then dying irrespective of how intelligent the treatment or faithful the nursing; in a word developing fatal septicemia from what appeared to be at the onset a very mild form of metritis.

The postmortem findings of such an animal often are almost unbelieveable to see how limited in area and intensity is the metritis or metroperitonitis as well as the slight morbid lesions of other organs and tissues which are ordinarily involved; particularly when we compare such a case and termination with the old rugged grade cow that has suffered eversion of the uterus, lying perhaps in a most filthy drop half a night, even tramped over by the other stock, and the uterus replaced with care that seemed to be directed principally to having adhere to it all the filth and infection possible. We have seen cases like this where after a few days the odor would drive one from the building and still the cow would never miss a feed, show no systemic disturbance, very little discharge, be a useful productive cow for the milking period and in some instances conceive with usual regularity. Or again, take the same rugged type of cow that has held her membranes, which protrude, are exposed and dragged about a filthy stable acting as a bridge on which infection may mount to the uterus, and in due time become so putrid that the stench would be almost unbearable, the vulva and vagina hot and swollen. Examination of the uterus reveals an endometritis and metritis throughout the fundus and recently gravid horn; there is fre-

quent straining and more or less offensive discharge, varying in character from mucosanguinous to mucopurulent, and in herds that have suffered a violent outbreak of contagious abortion, we have seen the discharge later become diphtheritic in character, and in some cases be expelled for a period of several weeks in curds of yellowish white or grayish white masses, containing shreds of sloughed tissue.

Notwithstanding this apparently intense metritis we have seen such an animal develop a temperature of not more than a degree or two; appetite remain good, and with reasonable care and good diet, milk up fairly well in a short time and gradually become quite well. And so under acute metritis or metroperitonitis we have this varied set of symptoms and terminations.

It is true that some of these cases develop the alarming symptoms that we have enumerated above as indicating probable fatality, but the unusual thing about it is that they do not all become prostrate. When such cases do prove fatal the postmortem changes will be more in keeping with what one would expect to find associated with the pronounced clinical symptoms. There is more or less effusion of serum in the abdominal cavity (plainly detectable before death by palpation in some cases that are not of the very acute type); the cavity of the uterus is found to contain a varying quantity of a chocolate- colored greyish fluid with a very offensive odor. There may also be other debris such as shreds of decaying fetus or fetal envelopes. The uterus is not contracted as in the normal condition; its walls are thickened, friable, soft, intensely red or dark and liver colored and infiltrated with inflammatory products. There may be more or less parametritis involving the bladder and adjacent tissue, and in cases where the blood-vessels suffer with thrombi, the adjacent vascular changes will be pronounced.

When true septicemia has intervened, its evidence may be confined wholly to adjacent lymphatic glands, or metastatis may be so pronounced as to give rise to abscess formation in such organs as the lungs, liver, spleen and kidneys.

It would seem, therefore, that the termination will depend *much* upon the animal resistance and *some* upon early and proper attention.

TREATMENT: There is no question but that by early and thorough cleansing of the uterine cavity, as described in the treatment of endometritis, coupled with good nursing and internal treatment to assist nature, many cases can be checked that would make serious advancement without such treatment, but attention to the uterus to be of any real value must be given early in these cases. In addition to cleansing the uterine cavity by hot douching we find in the case of a uterus that has held an emphysematous fetus for perhaps several days, when the uterine walls have become dried and hard, a liberal use for a few days of any of the bland oils seems to have much merit in relieving this dry leathery condition.

As metritis advances the handling of the uterus is not without danger. A better practice, generally speaking, unless these cases can receive treatment shortly after parturition, is to rely on internal medication. If, however, the uterus has collapsed so that its mucous surfaces are in contact or nearly so, then perhaps a dry antiseptic, such as boracic acid or uterine capsules of one's choice, may be introduced into the uterus to advantage.

In cases of retained placenta, acute endometritis and metritis, it has been the custom with veterinarians, and it was rather expected by the client, to reinforce sanitary treatment with internal medication, and I have heard some veterinarians state that in these cases, echinacea is a specific. I have used echinacea in varied doses and at varied intervals and in such quantities that I have purchased it in five gallon lots, and I have never in a single case felt that I got any results from echinacea that I would not have had from any simple combination of stimulants, tonics and internal antiseptics such as hyposulphite of soda, gentian, nux vomica, capsicum, camphor, and alcohol, which are always available and are not always prohibitive in price.

PROGNOSIS: The prognosis can best be judged in most cases by the appetite or want of appetite and the temperature. Of these two, the appetite is by far the better index. The subsiding of the inflammatory symptoms and the improvement of the discharge in character and the lessening in quantity will likewise be material aids in daily comparisons. Sound sanitary principles demand isolation.

DEPARTMENT OF

SWINE PRACTICE

Edited by A. T. KINSLEY, M. Sc., D. V. S.

Abortion and Sterility in Sows

Abortion is a term signifying the premature expulsion of the fetus. The average period of gestation in the sow is 21 weeks or from 145 to 155 days. Abortion in sows has prevailed in various sections of this country for many years, but fortunately it has not occurred extensively over large sections of the country. During the last few years many reports have been received of abortions in swine, and in some instances the condition has become so extensive that it has justly caused alarm to the swine breeders. A recent report from Missouri stated that some 40 sows on one farm had aborted and were now apparently sterile.

Abortion in swine is not confined to any particular breed, and from the available information, age of the sow does not appear to be a predisposing factor, as it occurs in first breeding sows or in aged sows. Generally speaking, the feed and surroundings are of little consequence as causative factors, excepting in extreme cases. No doubt, improper feed, bad quarters and insanitary surroundings predispose to abortion in sows as in other animals. Some breeders maintain that pregnant sows fed on screenings from grains, especially wheat and rye, or permitted free access to straw piles, are likely to abort. This may be due to the presence of ergot in the screening or chaff.

An occasional abortion occurs as a result of injuries induced by other animals or by slipping and falling. Some abortions occur as a result of other diseases, such as cholera, swine plague, etc. The greater number of abortions in sows are apparently of an infectious origin. The specific causative germ of porcine abortion has not been identified, although a variety of germs have been isolated from the aborted fetuses and uterine discharges. Until further definite information is available, it appears to be advisable to consider that the serious losses caused by abortion in sows is of an infectious nature and all preventive and control measures should be in the direction of improving the sanitary surroundings, quarantining the sows that have aborted and care in the use of the boar.

Abortion usually occurs between the third and fourth month of pregnancy and the breeder will have no difficulty in identifying the aborting sow. In some instances the fetal membranes are not sloughed and their retention frequently results in septic inflammation of the uterus and the death of the sow. All cases in which the fetal membranes are retained have a distressed appearance, arched back, no appetite, and they should have immediate attention.

Sterility, impotence or barrenness, is inability of an animal to reproduce its kind. Sterility occurs in both sexes. In boars this is usually the result of absence of sperm cells and is of common occurrence in aged boars or those that have been given excessive service. An occasional case of sterility occurs in the male or female as a result of lack of development or malformation of the generative organs. Sows may become sterile because of excessive accumulation of fat as is sometimes observed in show animals.

The most serious type of sterility in sows is apparently the result of abortion and occurs particularly in those sows that have suffered from retained fetal membranes. The retention of fetal membranes favors infection which in turn produces inflammatory disturbances of the uterus, and the secondary conditions that develop as a result of the inflammation prevent conception. Such animals usually come in heat, some regu-

larly, others at irregular periods and an occasional animal is observed that is almost, if not constantly in heat.

The corrections of sterility in sows is a difficult problem, as this condition is usually secondary to some other disease, such as abortion. Better results will be obtained by reducing abortion to a minimum by enforcing the proper sanitary measures and the sane treatment of aborting sows.

THE AMERICAN JOURNAL OF VETERINARY MEDICINE will be glad to have inquiries and report of cases relative to abortion and sterility in sows.

Differential Diagnosis of Infectious Swine Diseases*

By A. T. KINSLEY, W. W. DIMOCK and WALTER E. KING

WE have come to a time when the reports from the sources that the veterinary profession look upon as being reliable and trustworthy are absolutely contrary; for example, a paper is read discussing a disease in swine supposed to be caused by a certain microorganism, and at the same meeting it is asserted in the discussion that there is no evidence to show that the microorganism in question is the primary cause of a disease in swine.

We all recognize the limitation of human effort and we also recognize the possibility of error by our most conscientious and careful workers; but the veterinarians engaged in investigation and research should appreciate how difficult it is for sanitary officers and other interests vitally concerned in the diseases of live stock to appreciate such differences of opinion among investigators who are supposed to be conservative and reliable in their work. We fully appreciate and realize that the correct solution of the problems in question would be of untold value to the swine industry. On the other hand we are of the opinion that facts alone should be given preference and prominence and stated in positive terms and that the unproved theories must be stated only as suppositions.

In order that the summary of a report may be understood as having a reasonable degree of foundation we have attempted to briefly outline the diseases of swine as we understand them at the present time. The following list of abnormal conditions in swine is therefore given primarily as a basis for consideration and is not offered as an arbitrary classification. However, in suggesting names by which we shall know the different diseases occurring in pigs we feel that it is the best that can be proposed on the basis of our present knowledge. In every instance, where possible, we thoroughly believe in using a term that indicates the cause; but in those cases where the cause is not definitely known or agreed upon we feel that a term should be used that is based upon the most characteristic feature of the condition, be it either clinical, pathological, etiological, or a layman's term by which the condition has been known for a long time. The proposed list is as follows: Hog cholera, hemorrhagic septicemia, abortion, pig scour or dysentery, tuberculosis, actinomycosis, anthrax, malignant edema, infectious rhinitis, infectious necrotic enteritis.

Hog cholera is the most important infectious disease of swine. In the effective control of hog cholera there is unmistakable need for improvement. Our information as to the cause of hog cholera is incomplete, and until more definite knowledge of the cause of this disease is forthcoming the control of hog cholera will not be efficient. Such improvement will tend to prevent losses at present assigned to other diseases and the many inexplainable complications.

The committee concurs in the belief that hemorrhagic septicemia does occur as a primary disease in swine, although from the history and clinical investigations of outbreaks, it is evident that in the majority of instances hemorrhagic septicemia is a secondary disease.

From field reports it is evident that an infectious abortion exists in swine. The conditions under which abortion in swine

*Report presented at the meeting of the U. S. Live Stock Sanitary Association, Chicago, Dec., 1919.

*The report was read and approved by W. L. Boyd and Robt. Jay, members of the committee.

occurs indicate that it is of an infectious nature. A microorganism described as the bacillus of abortion in swine has been isolated, and experimental evidence pertaining to this microorganism further supports the belief that abortion exists as a specific infection.

Scour, or dysentery, of suckling pigs is recognized clinically. Various micoorganisms of the colon typhoid group have been found in this condition. Scour in pigs may be satisfactorily controlled by observance of proper sanitation and feeding.

Porcine tuberculosis and actinomycosis have been positively demonstrated. Tuberculosis of swine is on the increase. Tubercular cattle are the usual source of tubercular infection in swine. The lesions of porcine tuberculosis is very similar to tubercular lesions in other animals. Actinomycosis of swine is very prevalent in some sections of the country. This disease is prone to attack the mammary gland or scrotum, and the lesion produced is identical to the actinomycotic lesion occurring in other animals.

Anthrax occurs in swine. The usual source of infection is carcasses of animals dead of anthrax or contaminated foods.

Malignant edema has also been identified in swine but is not of serious consequence economically considered.

Infectious rhinitis (bull nose) is a relatively common condition in swine. This disease is characterized in the beginning by a catarrhal inflammation of the nasal mucosa which soon becomes mucopurulent in character. Later there is involvement of the cartilages and osseous structures of the nose and face, resulting in the condition popularly known as "bull nose." The most common causative microorganism associated with infectious rhinitis is the B. pyocyaneus and this microorganism may be the specific causative agent.

The following microorganisms have been identified in the discharges and diseased tissues of swine. B. necrophorus, B. suipestifer, B. pyocyaneus, M. pyogenes and B, B enteritidis and B. Coli communis suis, B. pyogenes suis, B. paratyphoid, A or spirochæta hyos. These microorganisms may or may not be pathogenic for experimental animals. They have been isolated from apparently normal swine as well as from diseased swine. The exact pathogenic relationship of any of the above mentioned microorganisms is not understood. They may be primary invaders or they may be secondary to some primary disease or process.

Some of us are of the opinion that so-called infectious necrotic enteritis of swine is a specific infective disease rather than the result of a variety of infecting microorganisms. The conditions under which the disease occurs, its course and nature seem to warrant our looking upon infectious enteritis as a specific infectious disease of pigs, and until such time as the true causative agent is known, prevention and control should be carried out by proper methods of sanitation, together with the use of such medicinal agents as have apparently materially helped in the prevention of this disease. When the true cause of the disease has been determined the possibility of prevention by the use of biological agents will be indicated.

"Salmonellosis" was proposed some years ago as the term by which the disease caused by the B. suipestifer should be designated. Since the name was proposed in honor of Dr. Salmon, who not only directed but took an active part in the early work concerning this microorganism, we suggest that if the B. suipestifer is proved to be the cause of infectious enteritis that the disease be designated as "Salmonellosis."

A condition occurring primarily in the south and ordinarily known as "thumps" has been observed. This condition is sometimes fatal, and an animal dead of this condition, when carefully autopsied, reveals no gross lesions. There is a characteristic clinical picture of abdominal breathing, but we have no positive knowledge of the causative agent.

A form of dermatitis usually called measles and consisting of a papular eruption in which the papules latterly become denuded and form ulcers, has also been observed. In swine affected with this so-called measles, there is an associated purulent inflammation of the ocular mucosa. No definite information relative to the cause or extent of this condition is available. The mortality is low, however, the economic importance of this disease being due to the fact that pigs that have recovered from so-called measles become stunted and do not develop properly.

Recently a condition, popularly known

as "flu" or influenza, which may be clinically distinct and characterized by an acute inflammatory disturbance of the anterior respiratory mucosa and associated with systemic disturbances, has been discussed, but the causative factor has not been identified.

Swine are subject to pneumonia. In some sections of the country the most common source of porcine pneumonia is parasitic. Aside from the parasitic types of pneumonia, swine are subject to pneumonia of bacterial origin. These animals, like other animals, probably rarely become affected primarily with infections of sufficient virulence to produce pneumonia, but when the animals are predisposed many infective agents are capable of producing inflammatory changes in the lungs.

One of the most serious problems, in our judgment, that confronts the swine industry of today is the loss incidental to immunization in public markets. A large percentage of the losses that occur in shipped feeder hogs can be reduced to a minimum by proper handling of hogs prior to vaccination, by obtaining a more rapid means of transportation, and by proper feeding and maintaining good sanitary surroundings on the farms at destination.

We condemn no effort that has been made to control the various aforementioned conditions and we are unable to advise the proper means of control other than hog cholera and hemorrhagic septicemia, until the definite etiologic relationship of the various pathogenic bacteria isolated from lesions of swine has been determined.

Time has been entirely insufficient for this committee to make a complete and exhaustive report upon this important subject, and we recommend that a committee on differential diagnosis of the infective swine diseases be continued.

IMPOTENCE DIFFICULT TO CORRECT

I would like some help in treating a pure-bred Duroc boar, belonging to one of my clients. A year ago this animal was used very hard through the breeding season, from November to March, against my advice to the owner, and when I wanted to place the animal in a pasture to himself away from the breeding barn, the owner demurred, saying that a large part of his prestige as a breeder depended upon this animal and that to segregate him would arouse suspicion in the minds of prospective purchasers of the animal's offspring as to their being prepotent breeding animals.

It was not until in August that the owner admitted having done the animal an injustice and asked me to treat the boar for "impotence" when, as a matter of fact, the penis was flaccid and incapable of protrusion without assistance, although there was an ejection of semen.

In addition to nux, gentian and iron in the feed, I have given sodium cacodylate hypodermically, without result.

In August, I found that the animal had an enlarged prostate which responded to a local injection of tincture of iodin, with potassium iodid, internally, and is now practically reduced to its normal size.

Even when turned on good clover pasture the animal did not feed as a normally healthy boar should, spending only a few minutes eating clover, then hunting trouble, trying to break out of the fences, rooting open the gates and making trouble in general.

A week ago I had the boar penned in a grass plot at some distance from the hog barn, with a barrow for company, and put him on a restricted diet of buttermilk, with only one ear of corn at a feed, twice a day.

Is there any medicinal treatment which can be relied on to secure improvement in this case? Will you please give some suggestions as to the line of treatment, etc.?—A. B. M., O.

REPLY BY DR. KINSLEY: You are dealing with one of the complex problems of veterinary medicine.

The impotency in the boar in question will, in my judgment, be very difficult to correct. Had the owner taken your advice and isolated this boar early in the season, the animal would no doubt have been in much better condition at this time and possible relief might have been obtained.

Your course of treatment is that usually applied. There is only one further suggestion and that is, if it is possible to obtain some yohimbin, it might prove of value in this case. I would continue the course on nux and give a full physiologic dose, in addition to a short course of yohimbin, if it is possible for you to obtain it.

The chances are that this animal is very highly bred and possibly inbred, and this

may be one reason why the impotency has developed. If such is the case, medicinal treatment will be of no avail.

We assure you the Journal is always glad to assist in every way possible.

HOW ASCARID LARVAE CAUSE PNEUMONIA IN SWINE

In the discussion in this department last month of pneumonia in pigs as a result of infestation of the larval form of ascarids, it was not made clear in what manner the parasite reaches the lungs.

The larval ascarid, probably in the majority of instances, perforates the tissue throughout, thus gaining entrance to the lungs. A few may reach the lungs by way of the circulation, through the liver, to the heart, and then through the pulmonary arteries.

ABORTION DISEASE

(*Continued from page* 12)

plications, a mild solution of permanganate seems to hasten recovery.

If the discharge is entirely cleaned up and all parts feel normal to the touch, the animal is put back into the herd at the end of six or seven weeks. This seems safe since Schroeder and Cotton state they have never found the Bang organism in the uterus or vagina later than fifty-one days after abortion; however, if the cow is slow in cleaning up it is well to continue her in quarantine for at least three months, since in the report of the New York State Veterinary College of 1912-1913, on page 89, it is stated that the Bang organism was found in the uterus of a cow eight and a half weeks after abortion.

I continue the douching of the vagina and cervix for two reasons.

First, I have a fear that abortion is not solely due to the Bang organism and that the vagina harbors organisms that await an opportunity to enter the uterus.

Second, I believe that cervicitis is one of the most obstinate and most frequent causes of sterility and that constant hot douching is one of the best methods of guarding against acute cervicitis becoming chronic.

In addition to this technic, it is my custom to douche the vagina of all cows in the herd two or three times weekly for two or three weeks before they are bred and every other day after they are bred, until we are certain they have conceived. All cows to be douched again within a week or ten days of freshening in the hope of again cleaning the vagina at a time when the uterus is wide open and exposed.

I am conscious that the value of vaginal douching is questionable since some seem quite certain that the infection causing it is not by the vaginal route, but like cleansing the prepuce of the bull and irrigating the sheath, it is part of the system that has given me results and I have not the courage to abandon any of it without quite positive proof that it is safe to do so.

Further, I know full well that all this detail is laborious and costly and that it is not always feasible to carry out the entire technic, but we should do our part and plead with our clients to do theirs as far as they can, and I know of no class of veterinary service that stands out more distinctly professional than to go into a large herd where the loss in calves and nonbreeding animals has been tremendous for years, due, perhaps, largely to quacks and quackery, make an examination of the animals, and be able to discard the hopelessly sterile ones and outline a definite policy that will bring relief, keeping in mind first, last, and always that to keep down sterility, like a case of lymphangitis, we can do more in a few days at the right time, than we can do in months later.

"The proper treatment of the pathological changes occurring in the genital organs which inhibit conception." This, of course, is an extensive topic in itself. The only comment I wish to make on this subject in this paper is that the method here advocated in caring for the genital tract after parturition in itself simplifies the problem of sterility. Where this method is coupled with what might be styled normal care of the cattle, such as reasonable feeding of high proteins, reasonable open air life and exercise, and breeding animals reasonably soon after normal parturition, instead of delayed breeding, enforced confinement, and injudicious feeding all to make records, we will find that our sterility problems will be reduced to a minimum.

A veterinary hospital is being built and equipped at Purdy, Mo., by Dr. R. B. Horton, assistant state veterinarian.

Department of Live Stock Poisoning

By L. H. PAMMEL, Ph. D., Ames, Iowa
Professor of Botany, Iowa State College

Readers are urged to take advantage of the opportunity offered by Dr. Pammel, for the identification of specimens of supposedly poisonous plants. Two good-sized specimens, carefully packed, should be sent to him direct, with such history as may be available. Simply mention that you are a reader of the AMERICAN JOURNAL OF VETERINARY MEDICINE and no charge will be made for this service.

Fern Poisoning

The Veterinary News,[1] London, contains the following interesting account of fern poisoning. The bracken referred to is what is commonly called brake (*Pteris aquilina*), which was referred to sometime ago as the cause of poisoning in British America.

An old army horse in poor condition, the history being that the horse had been turned out to graze on a large common where there was little grass available owing to a large number of sheep present and the dry weather, but a tremendous quantity of ferns and bracken, which it ate greedily, so the owner informed me, with apparent relish. The animal appeared dull, sleepy, refused food and spent most of its time lying down, frequently looking around at its abdomen and constantly yawning and turning its upper lip up. Pulse, respiration, temperature, were all normal. The visible mucous membranes were icteric; defecation was difficult; feces passed were hard and covered with yellowish slime. The urine was passed frequently, but scanty in quantity, accompanied by groaning and swishing of the tail. The animal had a miserable, dejected appearance, and moved lame on the off fore-shoulder. The case was diagnosed as fern poisoning.

The treatment consisted of hyparecolin, 2 grs., rectal injections of sterile physiological sodium chlorid solution and walking exercise, which soon caused evacuation of the bowels, the ingesta passed being fern leaves; thereafter rapid improvement followed. However, three days later the skin was covered with swellings ranging from a shilling to that of the palm of the hand like urticaria. These swellings which were most prominent and largest on the shoulder, and at the bend of the hocks, were painful when stroked with the hand. The skin was abnormally warm and the temperature rose to 103° F. The animal was given a saline aperient sodium sulphate in a quart of warm water and the skin was bathed with an astringent wash containing lead acetas, zinc acetas, berberine hydrochloride, morphine acetas compressed tablets. After a few days the swellings disappeared, then pustules formed on the neck and shoulders, particularly at the bend of the hocks, these burst and discharged an amber yellow, sticky fluid and dried, forming thick scabs (like psoriasis tarsi sallenders), A painful acute inflammation developed around the hock joints, causing lameness so severe that the animal had great difficulty in moving at all, and the skin peeled in places. The skin area affected was cleansed with germicidal soap, soft McClintock's, and then painted with tincture of iodin. Later "Bipp" dressing was applied and recovery followed after using (phylacogen) polyvalent serum mixed (Parke, Davis & Co.). The diet consisted of milk and white of eggs beaten into a froth, afterwards bran mashes and oatmeal gruel. The illness lasted three weeks and lameness disappeared.

[1]Oct. 4, 1919.

SHREDDED SORGHUM INJURIOUS.

Dr. Curtis L. Ivey of San Marcos, Texas, sent me a lot of shredded sorghum from which the sugar had been removed; together with the following letter.

"I was called on October 22nd to see two sick cows. One cow had aborted Monday night;

the other Tuesday, both staggered about like a person intoxicated; would fall, lie there a few minutes; get up and stagger about again. We went out into a small lot and found another in the same condition. On questioning I found the cattle had been eating the sorghum stalks around an old molasses mill and the owner had found one dead, one died two days later, one three days and the other four days later, showing symptoms of intoxication. Will you please examine and let me hear from you at your earliest convenience?"

The sorghum reached me in a few days after it was mailed. It was very mouldy and while I could not determine the fungi found on the sorghum, I made out the following species, black mould (*Cladosporium herbarum*), purple mould (*Fusarium*), red mould (*Verticillium sp*), and *Macrosporium;* also some pink yeast (*Saccharomyces glautinus*). There were also numerous bacteria. It would seem that the poisoning might have been caused by the fodder. No doubt some of the organisms produced a toxic substance. I have often observed that the cut ends of cane and shredded cane contain a great deal of pink yeast. Dr. Schneider in a communication to me recently reports a case of poisoning from sheep due to toxins developed by one of the yeasts. At any rate, I am inclined to attribute the poisoning to this fodder with fungi bacteria and yeasts.

In some places shredded cane is used in June to put into silos. I have not heard of any injuries from the use of such silage. It, of course, is properly covered and therefore, I think, wholesome.

WILL FROSTED SUDAN GRASS PRODUCE POISONING?

Dr. H. B. Young of Waukee, Iowa writes as follows: "Is sudan grass which has been frosted suitable for grazing purposes, if not at present, will it be all right when dry?"

Sudan grass has been grown a good deal in many parts of the corn belt states. It is a valuable forage plant and, when properly cured, makes the best kind of hay. Sudan grass is of course, related to Johnson grass, sorghum, broom corn, etc. Frosted cane has long since been suspected of being poisonous. Dr. R. H. True of the U. S. Department of Agriculture made this comment a few years ago; "This office has from time to time received communications from stockmen, especially in the lower part of California, Arizona and adjacent territory, expressing a suspicion that the eating of the Johnson grass has caused the death of stock with rather sudden and violent symptoms. There has seemed to be little ground in poisonous plant literature to support such an explanation. Last summer, however, convincing observations were reported from California by a stockman who had lost heavily, and a supply of the grass in question was obtained. The result of the study of this material was positive."

There is little in literature concerning frosted cane. I found it frequently stated in Texas some thirty years ago, that frosted cane causes poisoning. I am inclined to think that stock, especially sheep and cattle, should be kept off of recently frosted cane.

I think it would be perfectly safe to use frosted sudan grass after it is thoroughly dried and seasoned. It has however, by freezing, lost some of its nutrient qualities.

Dr. J. W. Connaway, Columbia, Missouri, in a recent letter to the writer states, in regard to poisoning from sudan grass, as follows:

"I wish to say that we planted a couple of plots of sudan grass and have been grazing them from time to time through the autumn without any symptoms of illness developing in the cattle. We have had two good frosts and the cattle, which have run upon these plats since have shown no signs of illness.

"Larger observations, however, will be necessary to settle the question as to whether frosted sudan grass is under all conditions free from danger. And I may say that the replies by veterinarians, agronomists and animal husbandmen in various parts of the county to inquiries which I have made, indicate that the dangers of prussic acid poisoning are so slight that no one should be deterred from growing this grass and using it for pasturage.

I do not think the matter of the sugar would make any difference in regard to poisoning. The glucosid dhurrin which is responsible for the formation of prussic acid occurs in saccharine and non-saccharine sorghums. Sudan grass is non-saccharine but the prussic acid is probably developed in it.

Toxic Agent in Meat Poisoning

Isidor Greenwald[1] made an attempt to demonstrate the presence of heat-stable toxins in meat that might be expected to give rise to poisoning. Beef was obtained from animals condemned because of infection or else was infected with B. paratyphosus B., or similar organism. In all, 11 strains were used. The meat was kept from one to six days at room temperature and then was heated to 70° for 30 minutes to kill the organisms. It was then fed to rats, mice and guinea pigs for several days. No ill effects were observed. It is concluded that these organisms do not form a heat-stable substance that is toxic to these animals when given by mouth. The acute intoxication in "meat poisoning" in hu-

[1]American Journal Public Health 9: 595-598, Chemical Abstracts 13: 2702.

man beings is due to greater susceptibility on their part to gather virulence of the organisms concerned, to the presence of heat-lavile toxins, or to a combination of these factors.

ILLINOIS V. M. A. MEETING

(*Continued from page* 18)

Reactors to the intradermal tuberculin test were also used in the clinic and the application of the test, the technic of injection, its advantages, and legal restrictions regarding its use in this state, were discussed in detail by Drs. W. G. Keehn of Chicago, and J. W. Martin, of Kankakee.

The clinic was closed with the presentation of a case for diagnosis that had baffled the veterinarians in charge and that proved equally difficult for those attending the clinic. After a number of opinions had been given as to the probable condition present, some consternation was caused by the announcement that the animal would be killed and an autopsy held. The autopsy was superintended by Dr. A. A. Leibold, of Kansas City, who demonstrated by his findings that there were a number of astute diagnosticians present.

The following resolutions of general interest were adopted:

Vaccination Charges.

WHEREAS, The *Prairie Farmer* has stated that there are certain veterinarians in this state, that are making extortionate charges for the vaccination of hogs, and

WHEREAS, By charging that there is a veterinary trust in this state, designed to protect and assist such men in holding up the swine raisers for unreasonable charges for the vaccination of hogs and other swine practice, thus reflecting discredit on the whole veterinary profession of the state,

BE IT RESOLVED, That the editor of the *Prairie Farmer* be informed by this Association that it does not approve of extortionate or unreasonble charges for vaccination of hogs or for any other veterinary work, and that it will not countenance such practice by its members, and

Further, It is the belief of the association that over-charging for vaccination or any other veterinary work is a rare exception among veterinarians of Illinois, and if it occurs at all, it is confined to a very small number of the members of the profession in the state.

BE IT FURTHER RESOLVED, That we protest against the publication of articles in the agricultural press or elsewhere, making general charges against veterinarians and respectfully request the publishers of agricultural and other papers to couch articles, tending to show incompetence or profiteering on the part of veterinarians, in terms sufficiently explicit to exclude the vast majority of veterinarians in the state, who are now giving and always have given, their best efforts for the protection of the live stock industry of the state, and have done it at a price and in a manner, satisfactory to their clients.

We also assert our willingness to investigate any specific instances of over-charging by veterinarians of the state, upon receipt of particulars from the editor of the *Prairie Farmer* or from anyone else, and assure them that the influence of the Association and its individual members, will be exerted unrestrainedly to correct such abuses, wherever they may be found.

We further express our entire willingness at any time to furnish our clients with full information as to the cost to us of the serum, virus and bacterins used in the vaccination of their hogs, and as to our charges for service for vaccination or other work.

We wish to go on record, unconditionally, that it is our opinion that the prevention and cure of the diseases of swine, is first of all a problem of diagnosis, and that it is unsafe and inimicable to the swine industry of the state, for vaccination or any other swine practice to be undertaken by any but qualified veterinarians, regardless of the training that others may possess in the technic of vaccination.

Hydrocarbons and Mineral Oils Condemned for Hypodermic Use

WHEREAS, Research, experiments and unquestionable authorities have demonstrated that liquid petrolatum or other mineral or hydrocarbon oils are not absorbed by the subcutaneous or muscular tissue; be it

RESOLVED, By the Illinois State Veterinary Medical Association, that we condemn the use of liquid petrolatum or other mineral or hydrocarbon oils, whether alone or combined with either, in the preparation of solutions intended for subcutaneous, intramuscular or intravenous injection, and further that we demand that such drugs as camphor be prepared with virgin French olive oil for our use; and

BE IT FURTHER RESOLVED, That we demand of concerns supplying such solutions for our use that they have printed on the labels the actual drug content of each ampule or other container.

The election of officers resulted in the choice of R. E. Nesbitt, of Clinton, for president; T. J. Foster, of Monticello, for vice-president; and C. C. Mills, of Decatur, for member of the board of censors.

The summer meeting of the association will be held in Champaign early in July.

D. W. CAMPBELL,
Secretary.

POINTED OPINIONS ON LIVE TOPICS by Readers of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the lasting gratitude of those who are aided by your suggestions.

Physical Measurements Which Correlate With Egg Production

THE width between the pubic bones correlates with egg production.

The distance from the cariniform cartilage of the posterior end of the sternum and the pelvic arches correlates with egg production. As a hen comes into a laying period the intestines become from 30 to 40 per cent longer and also larger in diameter, and the same changes take place in the oviduct. When the hen passes into a non-laying period the intestines again shrink in both length and caliber and the same is also found true of the oviduct. To meet this increased demand for capacity the pubic bones become separated farther, the lateral sternal processes of the sternum take a position downward and outward and the posterior end of the sternum takes a position downward, thus providing increased capacity. As the hen passes into a non-laying period it is noted that these parts again come closer together, so it is evident that the position of these bones is an indication of what the bird is doing or is going to do.

The comb and wattles are sex characters and are an expression of the condition of the ovary. When the ovary passes into a quiescent state the comb becomes small, shriveled, whitish, dry and harsh. As a hen goes into a laying period the comb becomes enlarged, congested, red, hot to the touch, soft, pliable, and loses its whitish color. When a hen takes a vacation or skips laying a day or so, the comb begins to get smaller, or we say, shrinks, commencing at the tip of the comb gradually following to the base. There is a correlation between the size and condition of the comb and egg production.

There is also correlation between the amount of yellow pigment in the skin and egg production. We find that the quantity of green feed given hens or the amount of available zanthophyll in feed has a part in the pigment disappearance in laying, and its reappearance in the rest period of the bird. As a rule we may say the following holds true. When a hen comes into a laying period we note that in yellow-skinned birds the laying of three eggs will bleach out the vent, five eggs will bleach out the scleral ring, 10 eggs will bleach out the ear-lobes, 15 eggs will bleach out the base of the upper beak, 20 eggs will bleach out the lower beak, 25 eggs will bleach out the middle of the upper beak, 30 eggs will bleach out the tip of the upper beak, and 60 eggs will bleach out the fronts of the shanks. The fronts of the shanks are the first to bleach out, next the sides and last the heel at the posterior part of the hypotarsus. We find that this bleaching out is closely correlated with the abundance of circulation in these several parts. We also note that in the rest period which follows a laying period the pigment is again deposited in these parts in the order in which it disappeared.

When a hen is in a rest period she stores up fat and pigment for the coming laying period. The abdomen of the laying hen is soft. The skin becomes soft and

pliable due to the fact that the disappearance of the subcutaneous fat has modified its physical condition. As the fat is again restored the deposition causes the abdomen to become hard, less soft and pliable; thus we have a direct correlation between the condition of the abdominal wall and of the skin in egg production.

The primary feathers always molt in a definite manner. The first feather to be cast off is always the one next to the axillary feather. The axillary feather is a short feather between the last secondary and first primary feathers. The second primary feather is next cast and so on till the last. There are ten primary feathers. It requires six weeks to cast and grow the first primary feather, and two weeks to cast each of the additional feathers. When one feather on one wing is cast the corresponding feather on the opposite wing is also cast. In other words we see that nature cares for the bird by not casting all the flight feathers at the same time so as to make flight from enemies impossible, neither does she unbalance the bird by more molting of flight feathers on one side than the other for similar reasons.

The vent of a laying hen is large, soft, flabby, moist, and white. The vent of the non-laying hen is small hard dry, puckered and yellow.

B. F. KAUPP.
Exp. Station, W. Raleigh, N. C.

APPROVE WORK OF BUREAU CHIEF

At the meeting of the U. S. Live Stock Sanitary Association in Chicago in December, resolutions were passed, commending the excellent service which Dr. John R. Mohler has rendered to the live stock industry of the country, during his term of office as Chief of the Bureau of Animal Industry. The resolutions are as follows:

WHEREAS, Our highly-esteemed friend and co-laborer, Dr. John R. Mohler, Chief of the U. S. Bureau of Animal Industry has, during his term of office, conducted affairs of that great Bureau most satisfactorily, and through whose devotion to duty and interest in all matters pertaining to live stock sanitation, much has been accomplished for the general good of the live stock industry in bringing about a closer co-operation of all officials, both state and federal, in this great work, and

WHEREAS, It has come to the knowledge of your committee that the opportunity has been presented to him whereby he might be the recipient of substantial financial gain, and

WHEREAS, In the face of such offer he has chosen rather to remain with the live stock sanitary forces; be it

RESOLVED, That this association heartily endorse his administration as Chief of the Bureau of Animal Industry and express its sincere appreciation of his choice to remain as Chief of the Bureau of Animal Industry, in which position we believe he can render higher service to the great live stock industry in which we are all so vitally interested; be it further

RESOLVED, That this resolution be spread upon the minutes of this association and an engrossed copy be presented to Dr. Mohler as conveying to him our gratitude for his noble, self-sacrificing decision in the matter.

BEST TO LEAVE SUCH CALCULI IN SITU

A dog was recently brought to the clinic of Doctor C. A. White at The Chicago Veterinary College, the history of which indicated that he might have swallowed a sharp-pointed foreign body, as every time he was picked up he whined as if in pain.

As was his custom in such cases Dr. White had an X-ray photograph made of the animal, the exposure being a dorsal one and the resulting plate was subsequently delivered. The plate was unusually clear and revealed the osseous structures of the thorax, loin, sacrum and pelvis, but to the practiced eye of Dr. White no for-

eign body or anything to indicate the cause of trouble was in evidence.

He brought the plate back to the X-ray laboratory and the operator, who was a physician but not a comparative anatomist, drew attention to what he regarded as a singular feature which appeared in this picture and also in a similar one of a dog which he said he had previously made for a Doctor F.

He pointed to a shaded, narrow, elongated object, which appeared to start in the pelvic cavity and run forward on one side for several inches. At the time he made the picture for Doctor F., he said, they discussed this object and reached the conclusion that it was caused by the presence of calculi in the ureter, and upon this assumption Dr. F. had operated but found nothing.

He looked searchingly at Dr. White. "No wonder," said the latter, "the object which you refer to in the picture is the dog's penial bone.

"Bone!" said the X-ray man compassionately, "who ever heard of a bone in a penis?"

IMPACTION OF THE COLON.

This condition is one of the oldest complaints that affect the horse and the one that we are most frequently called upon to treat and the mortality is by no means low if it is not handled efficiently. I do not lay claim to being an authority, or a specialist on this condition, but am writing this with the hope of arousing more careful consideration of the treatment, as the condition can not be treated successfully by careless haphazard methods.

One of the conditions which is almost invariably found is a cessation of peristalsis, often complete. This alone accounts for the finding of the medicine which has been given to the animal, in the stomach upon postmortem examination. Hence the all-important point is to restore peristalsis as nearly to normal as possible; that accomplished the patient is 75 per cent cured. The pain, if acute, should be controlled, for there is more or less danger of volvulus, torsion or intussusception. The pain should not be controlled with narcotics or hypnotics, but rather with anodynes and analgesics, for the use of heart depressants will not make for progress. It is important to keep the vital functions as nearly normal as possible.

In this condition oils are contraindicated and absolutely useless. It is far better to use water.

I am never in a hurry to administer the first dose of medicine, as I wish to ascertain the exact condition of my patient before beginning treatment.

While it is considered empiric to treat the symptoms of a disease, or a condition; be that as it may, we doubtless, one and all, have become empirics while treating impaction of the large colon, as by that means alone can we hope to successfully combat this condition. Many valuable animals have been lost by hasty and thoughtless treatment, and by not taking into consideration the exact condition of the animal.

F. M. LONG.

Doland, S. Dak.

INTESTINAL ANASTOMOSIS

The following operation was performed for the sole purpose of demonstrating that it is possible, and many times practicable, as in many cases of hernia in which the bowel has been constricted a sufficient length of time to produce enteritis.

The subject, a mare weighing 900 lbs., was dieted for two days and given 6 dr. Fl. ex. cannabis indica, per jugular, then cast and ether administered. The seat of operation was clipped, washed, shaved, and painted with tincture of iodin. Sterile towels were placed around the field of operation, sufficient tegument being exposed to allow the incision. The sutures, sponges, instruments and dressings were sterilized by heat and the utmost care used to prevent contamination after sterilization.

An incision 12 cm. long was made on the left side through the common integument, obliquely downward and forward from the tuber coxae, then through the aponeurosis of the obliquus abdomonis externus muscle. The fibers of the obliquus abdominis internus muscle were carefully separated, revealing the peritoneum, which was grasped with tissue forceps, elevated and an incision made through it large enough to permit the passage of the hand.

The section to be removed was withdrawn through the incision and drawn between the thumb and forefinger, thus removing the contents of the bowel from the seat of operation. The regulation operation of anastomosis was then performed. The peritoneum was sutured with heavy No. 10 silk thread, using plain interrupted sutures; the separated fibers of the obliquus abdominis internus were also sutured, no allowance being made for dead space. The common integument was sutured in the same manner, and the wound painted with tincture of iodin and covered with sterile gauze, held in place by adhesive tape. The animal was then placed in a clean stall and allowed to rest.

This operation is very simple, the antiseptic technic being the most important part. It must be a dry operation, not over one or two ounces of blood should be lost, and no antiseptic liquids should be used to cleanse the wound during the operation. Forceps should be placed on the small vessels to prevent seepage.

The after-treatment consisted of 5-mil doses of camphorated oil, hypodermically, and spraying the wound twice daily with tincture of iodin.

This animal will be destroyed in due time and section of the intestine containing the anastomosis forwarded to the Journal office for verification.

TERRE HAUTE VETERINARY HOSPITAL.
Terre Haute, Ind.

CASE OF MALIGNANT EDEMA

A 4-year-old mule had been idle for some time when hitched with her mate to a cultivator to plow corn and worked all day. The next morning her neck just in front of the withers where the collar rests was extremely swollen with radiating cordlike swellings; temperature slightly elevated.

The owner said he expected she would die as he and his father had lost four mules afflicted similarly and this mule was worse than the others were. The mule being so soft, sweating freely and the day being so hot, the parts were scalded or practically cooked. Treatment consisted of a complete resection of the dead non-sensitive tissue, the mass being larger than two fists. The cavity was swabbed out, filled with a strong tincture of iodine, the remaining swelling painted and injected with iodin in several places. Considerable iodin may be injected without producing iodism. The swelling was painted with iodin three days before improvement could be noticed—arrest of the trouble being the encouraging factor. To induce healing of the wound, I used powdered alum for two treatments, followed by healing powders and iodoform, an agent I found excellent to keep flies away and stimulate healing. The mule recovered nicely, much to the owner's surprise and mine, for I have lost several cases, though the treatment is the best I have found.

Brookline, Mo. W. O. HODGE.

A GOOD SUGGESTION

No doubt the intricacies of phenomena such as bacteriolysis (Pfeiffer's phenomenon) and hemolysis (Bordet Gengou phenomenon) are familiar to all practitioners of human or veterinary medicine who have graduated during the past few years. It is assumed that they received modern instruction along bacteriologic lines, and have fully covered the ground necessary to a sound understanding of this important subject. However, to some who received their professional training during the period when bacteriology was in its infancy and have not kept pace with more recent investigations these different phenomena are unfamiliar, or even in the nature of a closed book. Engaged as they are in busy general practice, there are many to whom theoretical deductions do not appeal. Although in sympathy with all scientific progress, they feel that much of the modern teaching along the above mentioned lines is "over their heads", and are perfectly willing to surrender the whole matter to those who are interested in this particular line of endeavor.

To some; who were not gradually initiated into the mysteries of Ehrlich's side-chain theory of immunity by painstaking and persistent instructors during their student days, mention of this hypothesis conjures up chaotic visions of objects resembling miniature Indian clubs (receptors); evil looking characters (toxic molecules) with gaping haptophorous maws and black toxophorous whiskers (à la Der Captain, of Katzenjammer fame), and the hexagonal arrangement of C_6H_6,

illustrating "the well known benzene ring," to which the side-chain theory is thought to be chemically comparable. Some, who are especially enterprising and industrious, have struggled through textbook descriptions of Ehrlich's side-chain theory of the first order (antitoxins) with considerable satisfaction, only later to fall by the wayside over the second and third orders, when finding that diagrammatically, the *receptor* of the second order, and the *compliment* of the third order, boast hirsute adornments differing but slightly in style from those affected by the *toxin* of the first order.

These statements are not intended as a criticism of the usual diagrams accompanying a description of this theory, but are made in an effort to indicate that it is difficult to fully comprehend these different phenomena from graphic representations alone, however ingenious they may be. The synonyms for antigen, amboceptor, and complement—the elements necessary to complete a bacteriolytic, or a hemolytic system—are so numerous and perplexing, that finally the miserable victim of self-instruction is very likely to wearily lay aside the book describing the theories of immunity, and either pick up a work dedicated to "The Common Colics of the Horse", or fall asleep.

This is the age of biologics. Many practitioners have abandoned the use of drugs in the treatment of certain infectious diseases. On the other hand, there are those who believe that the employment of sera, vaccines, and bacterins is being carried to extremes, and that the pendulum will gradually swing back to medicinal treatment in combating some of these conditions. In view of the fact that biologics are employed so extensively at the present time, however, it seems desirable that all practitioners should possess at least a theoretical knowledge of the processes which follow the introduction of these products into living tissues. All of these matters are treated exhaustively in a number of admirable textbooks devoted to the subject.

It is my opinion that JOURNAL readers would welcome an up-to-date comprehensive article devoted to these phenomena, written by someone competent to handle the subject. Many, seeking knowledge along these lines, who would enjoy reading a concise well written article, would not for a moment consider "wrestling" with a textbook on the subject. It seems important that the modern conception regarding the different varieties of cell receptors as being engaged normally (physiologically) in entering into chemical combinations with the various food elements for the purpose of cell nutrition, should first be discussed, before taking up their supposed behavior after invasion of the tissues by different varieties of antigen. The three orders of Ehrlich's side-chain theory should be thoroughly explained, so that a good understanding of the production of antitoxins, agglutinins, precipitins, bacteriolysis, and hemolysis is assured. Practitioners, and field veterinarians, who are dealing with suspected cases of glanders, dourine, or infectious abortion, and are in the habit of forwarding blood samples from suspects for laboratory diagnosis, should be interested in a discussion of the phenomena which are basic to the practical and important complement-fixation test.

J. P. FOSTER.

Rochester, Minn.

BLEEDING AFTER CASTRATION STOPPED BY ERGOTOL

While castrating colts the past season, I was called to a farm where a colt coming two years old was being kept shut in a box stall because the owner did not think it safe to turn him out with the other horses. This colt looked like a picture, and no one would have suspected him to be in anything but perfect health. The operation of castration was performed in the recumbent position, the colt being cast and securely tied and the parts disinfected. The latter I believe is an important precaution and should never be omitted. White's improved emasculator was used to sever the cord, and when the operation was completed and the colt released, he sprang to his feet and went away eating grass as if nothing had happened.

I went my way and all was well for about three hours, when I was called by telephone to come quickly as the colt was bleeding profusely and the owner feared it might bleed to death. Upon arriving at the farm, I found the colt standing in the stall with its back slightly arched and quite a quantity of blood in a puddle on the floor. The pulse seemed weak and somewhat more rapid than normal, but I didn't take time to count it. I hurriedly prepared a hypodermic of ergotol and injected it

subcutaneously, tried to entertain my client for a few minutes by discussing the topics of the day, and in less than seven minutes the blood had stopped completely. The owner was well pleased with the results. I have used ergotol to stop hemorrhage several times and have always had good results.

Poplar Grove, Ill. C. B. HAWES.

A VACATION TRIP TO CUBA

Following the New Orleans meeting of the A. V. M. A., Dr. Ryder, and Mrs. Ryder of Chicago, Mrs. Mayo and little daughter Louise, and the writer left New Orleans by boat for Cuba. After the usual annoyances of getting our passports vised, sailing permits, boat accommodations and vaccinations, we were notified to be at the dock at 6 p. m., where we gathered and waited until they had finished loading the United Fruit Steamship Sarramacca; then they anchored the boat out in the river and fumigated it with formaline. It was nine p. m. before we got on the boat and had our supper.

The boat sailed about 10 p. m., so we missed a daylight trip of 100 miles down the river to the jetties. When we got up Sunday morning, the ship was out of sight of land in the gulf. It takes about forty-eight hours to make the trip from New Orleans to Havana, and as the weather was fine we had a delightful time. The water of the gulf was blue as indigo; schools of flying fish startled by the ship, skimmed over the water, and several schools of dolphins and porpoises rolling over and over added to the interest of the voyage. Just at dusk, Monday night, we could distinguish the headland of Mariel to the right and about 8 p m. the flashlight from Morro Castle could be seen from the hurricane deck. Two hours later we steamed through the narrow channel, past the towering walls of the grey old Morro on the left and the fluttering lights of the beautiful city of Havana on the right into the magnificent landlocked harbor and anchored for the night.

Early the next morning the quarantine officers inspected us and the customs officers our baggage and we were again in Cuba where we, in time past, spent some of the most interesting years of our lives.

Havana has changed much since we first knew it fifteen years ago. The victorias have been replaced by Fords, that the natives call "fotingos," (toot toots) or "cockroaches." The open store fronts now have plate glass and the three-story limit to buildings has been removed, so there are a number of "skyscrapers" of six or eight stories.

We visited the famous old forts that La Fuerza built to protect Havana, some 400 years ago, and now used as quarters for the rural guard. Morro Castle, where so many Cuban prisoners were confined, is now used as a military school for the training of cadet officers. We saw the dungeons, and the chute down which, they say, dead and living prisoners were slid into the sea to feed the sharks. The "Twelve Apostles," old bronze muzzle-loading cannon that in old times guarded Havana, are now green with oxide, but they still bear the royal arms of Spain and the most catholic king, Don Carlos.

Doctor Ryder, who is particularly interested in dairy work, enjoyed seeing a bunch of milch cows being driven about with a suckling calf. The cows are stopped before the door of the house, the housemaid brings out a dish for the milk, the calf is allowed to suckle each teat of the cow for a few seconds to "start the milk." The calf is then pulled away and the milkman milks the required quantity directly into the receptacle before the eyes of the buyer.

We spent one day at the Agricultural Experiment Station that the writer helped to organize in 1904. The orange, grape fruit, tangerine and other trees that were planted then are now great trees loaded with fruit, of which we ate our fill. So, the old Spanish proverb, that "He who plants a fruit tree in Cuba will return to eat the fruit," was fulfilled. Rubber, cinnamon, camphor and other tropical trees had made a wonderful growth and the Bouganvillea vines clambering up on the houses were gorgeous with purple blossoms.

We spent a most delightful eight days in Cuba and returned by Key West. It is only seven hours by boat from Havana to Key West, but a northeast gale was blowing so that—

"The cabin port holes were dark and green
Because of the seas outside.
And the ship went wop (with a wiggle between),
And the steward fell into the soup tureen

And the trunks began to slide."

It is not necessary to say more. The writer doesn't get seasick, that is, not often, but there were a lot of hungry fish following the boat that just had to be fed. The harbor lights of Key West winked wickedly at us as we steamed in at 7 p. m., and the captain said the passage was not rough. He was a big fellow and we didn't like to tell him what we thought.

We soon passed the customs and were in our berths on the way to Chicago. The third morning when we woke up in central Illinois and looked out to see the ground covered with snow, we tucked our B. V. D.'s away, got on our "heavies" and prepared for the work that we knew awaited us. It was a different world. In Cuba, the thermometer was 80 or more every day, and one only needed a sheet or spread to sleep under at night. Here was snow and cold and smoke and bustle and work, but it is our world and we cheerfully said "Adios" to Cuba and a delightful trip, for we were home again and all was well.

Chicago. N. S. MAYO.

FATAL OBSTRUCTION DUE TO GRAVEL

In reply to Alfred T. Rook's article on "Intussusception Following Castration," I will give my opinion backed by twenty-two years' experience, and will cite one instance which came under my observation:

My opinion of Dr. Rook's case is that in throwing the horse there was produced a volvulus or twist in the bowels which caused the straining and protrusion of bowel.

A liveryman called me to see a sick horse that he had procured two weeks previous in a trade. The animal had several white specks on the back, over the loin, and forward, which the owner said were birthmarks. I had seen just such marks on horses before, during some years' practice in the mountains. Horses stray off or are missed in the gathering in from the range, get snowed in, and almost starve. I have seen them in the early spring with the hide off in several places on their backs, grazing along, with magpies eating the flesh—so weak they could not drive the birds away. I observed that new hair in these spots always grew in white, presenting the appearance some are pleased to call birthmarks.

I observed this horse when the liveryman got him. He was very gaunt, good bone and frame-barrel like a grey-hound, small anus and penis.

The liveryman began to fill him up; he had a mate for him and was planning to sell them together. He got him filled up, and the horse then became sick and I was called.

I diagnosed the case as obstruction of the bowels, accompanied by inflammation. I gave the usual treatment: stomach tube, enemas, hot application to abdomen followed with arecolin and strichnin, and after an hour had obtained only a little peristaltic action. Rectal examination disclosed misplaced bowels. I told the owner the case was almost hopeless but stayed with him and worked faithfully until the end which occurred twenty-four hours later.

The only time this horse became easy (and I gave him laudanum at times) was when I took him out in the corral at five in the morning, two hours before he died. He got on the manure heap, pawed a hole, threw himself into it, shoulders and abdomen in the hole, and in this position he became easy.

I mentioned to the bystanders that he might be loaded with gravel and sand and that that might cause the excess of inflammation. I had had similar cases before.

Postmortem disclosed a loop of the bowel up in front of the large colon on the right side. It passed back along the rectum, turned abruptly, and came back the same path—all in a state of inflammation. Inspection of the large colon revealed forty pounds of gravel ranging in size from that of shot to that of a walnut, in the first lower fold of the colon. I concluded the bowels were displaced at the time the horse was castrated; that he had probably been sick after the operation and had eaten gravel and sand at the time, the sand passing off. The spots on his back came from magpies eating his flesh while in a helpless condition.

A short time later I met the man who raised the horse and on inquiring learned that this horse did not get up for two months after he was castrated and that the magpies had injured him severely at that time. Further, that he had never thrived

afterward and had had frequent attacks of indigestion. J. E. BARKLEY, V. S.
Twin Falls, Idaho.

COST OF SERUM PLUS MILEAGE AND TIME CHARGE FOR VACCINATION

My views upon the hog cholera situation are these: Place the serum and virus at cost plus the express charges and other small items as telegraph, etc., to the farmer, let him see the invoice if you wish, as this inspires confidence and will bring in business where chicanery will lose out. Then make a good reasonable charge for professional services. I charge mileage at the rate of $1.00 per mile one way, and $2.00 per hour for each hour after the first hour, which I give gratis. This applies to large herds only; in small herds I charge cost of material and mileage, as above, plus a town call $2.00. I think this method is the only way for permanent success, and one must admit that the up-to-the-minute farmer of today is pretty well posted upon the prices of serum, and overcharging will mean the loss of his patronage, whereas fair treatment will mean satisfied clients, more vaccination and more work for us, and more hogs for the market. Think it over.
Hotchkiss, Colo. JOHN A. BESTALL.

THE POST GRADUATE COURSE IN EDINBURGH, SCOTLAND, FOR VETERINARIANS OF THE A. E. F.

As a part of the educational system of the A. E. F., fourteen veterinary officers were ordered to the Royal (Dick) Veterinary College of Edinburgh for post-graduate work and there took a course which covered a period of two months' work in parasitology and bacteriology. The work was made as comprehensive as possible in the time allowed, the plan being to enable the practitioners to do considerable clinical laboratory diagnosis. The use of the hand lens, low power microscope, wet film examinations and ordinary staining methods, was emphasized.

The class included beside the fourteen American veterinary officers, a number of Australian and New Zealand veterinary officers and a few Scotch veterinarians. The Americans were in charge of Captain E. R. Steele, now located at Grundy Center, Iowa. Speaking of the course, Dr. Steele says:

"Professor D. C. Matheson presented the subject in a very thorough and interesting manner. We found our Scotch instructor indeed pleasing and courteous, an excellent pathologist and a true gentleman. His witty sarcasm was mirthful at times and his patience with his class of restless Americans never became exhausted. The chief veterinarian of the Australian veterinary corps, Lieutenant Colonel L. Matson, D. S. O., was in our class. All our classmates, we soon learned, were 'jolly good fellows.' We shall always remember with pleasure their comradeship.

"Students in Europe devote more time to their education and are not as rushed as they are in America. Many holidays are interspersed and the day's work is not as long as ours. The British have their tea every afternoon. Outdoor sports such as golf and tennis, are very popular. No roll call is ordinarily taken, except that the arts and science students are sometimes requested to leave their calling cards, I was told. Text books are not so rigidly followed as in America. One of the American students at Oxford, it was reported, asked his professor what text would be used in his course, and was advised: 'We don't give courses at Oxford; we don't study a text at Oxford; we don't write texts at Oxford. We study the subject.'

"We veterinarians, also, became anxious to secure a text on our course, but

CAPTAIN E. R. STEELE

were merely referred to several sources of information to look up if we desired. However, we were supplied with plenty of data and given references to various articles in both European and American journals. The stand taken was that students too often get ahead of the subject and simply follow an author without personal study. On the whole, we appreciated the difference of methods and thought American educational methods could be improved by less driving at things, tiring the student out in his attempt to keep up, merely ambitious of securing credits toward a degree.

"School hours were not so strenuous and we spent our leisure time in visiting various places of interest and in taking trips outlined by the Y. M. C. A. Edinburgh, we agreed, was the most beautiful city we had seen anywhere; but it was not half so beautiful as interesting. There was the Castle, Holyrood Palace, The Royal Mile, Bordie's Close (the setting of Stevenson's Dr. Jekyl and Mr. Hyde), Greyfriar's Cemetery, with the covenant of the Covenanters from which the Declaration of Independence was copied in its structure, the Firth of Forth, and many other places such as the abodes of Sir Walter Scott, Robert Louis Stevenson, and John Knox. Numerous excursions also were taken far into the country, which was very pretty, with its pastural landscape. Closely trimmed hedges and low rock walls fenced off the many small fields, all as neatly kept as our parks. The houses were of either stone or brick. The people live a simple life without the modern conveniences so common in the States. They asked us if our wooden buildings didn't rot from the action of worms, for many of their homes were centuries old. The finest of all trips was the one through the Trossacks, the land of The Lady of the Lake, and other of Scott's works. Some members of the detachment traveled to Ireland; others to Wales. We all spent several days in London, visiting London Tower, Buckingham Palace, Westminster Abbey Parliament Buildings, Old Curiosity Shop, Picadilly Circus, and many other places of interest. It was a splendid opportunity to see the British Isles, and to become acquainted with the people."

The members of the American Veterinary detachment were:

J. H. Allen, Cornell University, '15, Salt Point, N. Y.

Richard E. Butler, McKillip Vet. College, '13, Sparta, Wis.

William C. Callander, McKillip Vet. College, '17, Lanesville, Ohio.

David R. Edwards, Grand Rapids Vet. College, '14, Cambria, Wis.

Shelley O. Fisher, Cincinnati Vet. College, '17, Liberty, W. Va.

Leo J. Gallagher, Ontario Vet. College, '17, Elroy, Wis.

L. F. Holmes, Chicago Vet. College, '16, Kendall Wis.

COW, SHEEP AND HORSE PRACTICE

In regard to "Drifting" will say that I used to charge $1.00 for the first mile and 50 cts. for each additional mile, $1.50 for the call and medicine extra.

In my work now I have not very much trouble with horses, but quite a little trouble with retention of placenta in the cow. I secure the cow and remove the placenta with my hand introduced into the uterus. After removing the placenta from the cotyledons and the uterus, I flush out the uterus with a solution of 10 per cent iodin. No after treatment needed if a thorough job is done.

For stomach worms in sheep, my treatment is to isolate all infected ones and remove the rest of the herd to another pasture. The sick ones receive ½ oz. coal oil (kerosene) and 1 oz. linseed oil. Give this treatment twice per day for two days. About one week later repeat the treatment.

Acute indigestion seems to be the most common of any cases in my reports.

Case 1: Called at 6:30 a. m. Nov. 5, 1918. Bay mare, 8 years old, got out of pasture and into corn field some time the night before. When I arrived I found the mare standing head down, with anxious look, pulse 60, respiration 30, no peristalsis, some tympanitis.

Gave arecolin ½ gr. hypodermically; repeated dose in 30 minutes. Gave large physic, ball, injection pump used. No result from treatment. Gave 1 qt. linseed oil at 10:30 a. m. Gave pilocarpin and eserin at 2:30 p. m. Repeated dose in 45 minutes. At 4:10 mare passed 2 to 2½ gallons of corn that was not even crushed, whole grains. Mare made an uneventful recovery.

Case 2: Grey gelding, age 4 years, got into clover field, and was in field most of the night. Symptoms practically same as case No. 1, except animal in very much pain. Gave same treatment. Animal had a good recovery in a day or two.

Case 3: Black draft mare. Called Jan. 2,

1919. Found mare lying down, turning head to side, would get up, turn around, and lie down and roll some, then lie quiet for a few minutes. Gave same treatment as in cases 1 and 2. About six hours after the first treatment, the owner called and said the mare was very much worse. I went back and found the mare frothing at the mouth, pulse scarcely perceptible, respiration about 70, eyes bloodshot, cold sweat over body. Mare very restless. Diagnosed case as ruptured stomach. Mare died at 11:20 p. m. Did not hold any autposy on account of cold weather.

I am a firm believer in arecolin, but don't give it to a heavy one for you may come to grief.

Princeton, Mo. FRED E. BOYD.

AN IRRITATING CALIFORNIA FORAGE PLANT

Sometime during the month of May, I received through Mr. C. P. Dadant of the American Bee Journal the following letter and a plant from Mr. B. Schunchel of Lonoak, Cal.

"I see in the May number of your Journal of 1918, page 170, poisoning with propolis. I think that his bees have been gathering nectar, pollen or propolis from a poisonous plant, such as poison ivy or poison oak, also other fuzz bearing plants, such as golden rod and fireweed which some years grow abundantly and are very irritating to the throat and nose and makes a fellow feel like having a cold or catarrh. There are many other fuzz bearing plants which are very irritable from which the bees gather pollen and propolis. I am sending a so-called fireweed which is abundant this year and annoyed my throat. A wash with sugar of lead diluted in water is very effective for poison oak. A strong solution of salt and water as a wash for the eyes has the same effect, as it counteracts the poison. Many people are easily affected by poison oak some by merely passing by as is the case with smoke. Some people can eat or chew it without affecting them."

Quite a number of the plants of this family are very irritating. My reply to the above letter contained the following information:

"The plant is *Amsinckia intermedia.* I might say that his plant, which has been identified for me by W. A. Setchell of the University of California, and the note from your correspondent is of interest. Many of the plants of the *Borage* family are excellent honey plants, for instance the common borage (*Borago officinalis*), some of the plants of this family do not, however, furnish nectar. Toxic substances are found in some members of this family, for instance, the European heliotrope, which has a volatile poisonous alkaloid, and another borage, hounds tongue, contains a very poisonous alkaloid.

"I doubt very much whether the symptoms describe by Mr. Schunchel can be attributed to honey from this plant. I am inclined to think the irritation is caused by the peculiar hairs on the plant, as quite a number of the plants of this family are irritant and in some of the cases the symptoms are similar to those described by Mr. Schunchel."

SUGAR USEFUL IN EVERSION OF UTERUS

I have noticed in the JOURNAL references to the difficulty some have in correcting eversion of the vagina and uterus. I will endeavor to explain my procedure in returning the uterus in a case I encountered.

One winter night, after a heavy storm with the snow drifted from five to ten feet deep, I received a call two miles out of town. From what I could gather from the owner, it was a case of eversion of the vagina and uterus in a cow, following calving. I instructed the owner to wrap the uterus in a blanket to keep it from getting bruised and to keep the animal as warm as possible, and have plenty of warm water and good clean straw at hand.

Upon my arrival at the barn I found about ten men and a barn full of cows, the sick one walking about among the others. I had them turn out the cows standing on each side of this cow's stanchion, unwrapped the blanket and began to cleanse the uterus with the cow in a standing position. After cleansing all the visible parts, I placed a stick with a collar threaded with binder twine near the sacrum about two inches to one side of the lumbar vertebrae and extending over the other side. When this was done I brought the two loose ends together and drew them tight, and tied them in a hard knot. The cow then laid down and would not get up, so I wrapped the uterus up again; got a set of pulleys and tied a rope to her hind legs above the hocks and placed a bag of oats between the hind legs to keep them apart to provide more room to work. Then with the pulleys fastened to an overlay above and the lower end hooked into the rope on the cow's hocks, her hind parts were raised to a convenient position to work. I sprinkled a teacup of granulated sugar over the uterus, and almost as soon as it was applied the uterus commenced to shrink. Then I used about a pint of melted

lard, with about a half ounce of spirits of camphor. I commenced to return the uterus and soon had the mass out of sight. I held it in place for a short time with my hand then I had the collar threaded with binder twine again, and put several stitches into the vulva sufficiently deep to prevent tearing out. Then my hands being free I took two stitches across the rump.

I gave the cow a grain of strychnin sulphate, untied her and rolled her on her side. We went to the house, washed up and had a few glasses of cider and a doughnut or two and a good smoke, and when we went back to the barn old bossey was up, nibbling away at some ensilage. I instructed the owner to wash the parts where the sutures were once a day with good warm water, with a little crelon. In five days I went out and removed the stitches. I advised the owner not to breed the animal again. He milked her about 11 months and then sold her to the shippers.

H. H. GUY.

Petersburg, Mich.

EVERSION OF THE UTERUS REQUIRES SKILLED HANDLING

With reference to the case reports on eversion of the uterus by Drs. Taylor and Rader in the October issue, unlike Dr. Taylor, I find it harder to replace a uterus than to keep it in position. Careful cleaning with hot saline solution (no antiseptics), careful handling and patience bring satisfactory results. I do not find it necessary to pump solutions into the replaced uterus as I am equipped with a long arm and can smooth out the kinks satisfactorily. To be on the safe side, I always use a truss and in some cases stitch the vulva.

With replacement of this organ in sheep, I have not had satisfactory results. Although I have tried pumping saline solutions into the replaced uterus, results have been very unsatisfactory. I should apprecite information from veterinarians having success in sheep.

Some time ago I was called to an unusual case of eversion. Upon arrival I found a cow with tapes through the skin of the back holding in place a bundle of three fence pickets. Tapes that had been placed through the vulva were torn out. Inquiry disclosed the fact that one of our so-called veterinarians had replaced the uterus by pushing it into the vagina by main force and then stitching the vulva while the owner held the replaced (?) uterus just inside the vulva by means of his closed fist. After attaching his instrument of torture to the cow's back, this licensed nongraduate left. The uterus was again on the floor within ten minutes. After removing the section of fence and cleansing the uterus, which had not previously been cleansed, I discovered a complete rupture of the uterus about four inches long evidently caused by handling. This was sutured with catgut and the organ replaced. Very little straining followed replacement and an uneventful recovery ensued. Later this cow was bred and sold when with calf as the owner did not care to run the risk of a repetition of the trouble.

Norwalk, Conn. M. RAY POWERS.

SUGAR USED IN TREATMENT OF EVERTED UTERUS

Every one has heard of sugar cured hams, but after reading Dr. G. W. Rader's article in the October issue, I have concluded that there are some who do not known of sugar cured uterai. My plan for treating eversion of the uterus is as follows:

Wash off with quite warm water any filth that may be present. Then with clean hands, raise the whole mass while an assistant places underneath a clean piece of cloth which has been covered with white ganulated sugar. I then cover the uterus, being careful to fill each fold of the membrane. After a few minutes we see small streams of serum running off. At this point, knead and press between the hands, applying sugar to the parts that have been washed clean until the uterus becomes soft and small enough to be put back without much trouble. Be sure the parts are in proper position and keep them there by suture or otherwise. The sugar not only reduces the parts, but as the serum passes out, it washes the uterus more thoroughly than can be done with a sponge. I suppose some will wish to know where I get the sugar.

Perrysburg, O. LOUIS CHAPMAN.

TEAT TORN OPEN

In July I was called to see a five-year-old Jersey cow in full flow of milk. The owner said the dog had hooked a tooth in the teat and torn it open from about the middle of the teat to the distal extremity. I cleansed the wound thoroughly with cold alum water; the milk having all leaked out I pressed the parts into apposition, then wrapped the teat with adhesive tape. I left a teat tube with instructions to sterilize by boiling, and insert the tube at each milking time after lubricating with a few drops of sweet oil. The tape remained in place until the wound was entirely healed. The udder did not become affected and is in as good condition

as ever. I hardly expected such good results as I find these cases rather difficult. The tape seems to hold the parts better than suturing and does not permit milk to leak through the wound.

Brookline, Mo. W. O. HODGE.

TWINS—PHOTOGRAPHS AND INFORMATION WANTED

The Department of Genetics at the University of Wisconsin is making a study of twins, particularly in cattle, and to this end is securing photographs of twin calves, particularly in the spotted breeds. In this connection particular interest attaches to the degree of similarity of markings on the duplicated parts of double monsters, such as those with two heads and a single body or two bodies and a single head. These freaks are often "stuffed" or otherwise preserved, and the undersigned would greatly appreciate information as to the existence in museums or elsewhere of such specimens, of which photographs or accurate sketches might be obtained. It is believed that a more accurate knowledge of the conditions in such cases will help toward an understanding of the larger problems of inheritance in cattle and other animals. Address Department of Genetics, University of Wisconsin, Madison, Wis.

COULD THIS HAVE BEEN HEMORRHAGIC SEPTICEMIA?

I was called to see a Hereford cow, about seven years old, showing symptoms of hemorrhagic septicemia. There had been a sudden checking of milk secretion, and I found the cow had difficulty in swallowing, anorexia, general dullness and high temperature. There was a dark diarrheal discharge with bloody streaks. Edematous swellings appeared about the legs, shoulders and nostrils. The animal died soon after I arrived.

I diagnosed it as hemorrhagic septicemia on account of the hemorrhagic areas. The owner told me some specks that would pit on pressure had appeared in the region of the throat, neck, dew lap and legs. I was not called until bloody extravasations showed in the subcutaneous tissues. The lymphatic glands were also infiltrated with bloody serum. On account of being called to another case, I did not have an opportunity to hold autopsy.

I should be pleased to learn more about such cases from some fellow practitioner.

Iuka, Miss. A. M. FARRIS.

THE SCAB WAR IN MONTROSE COUNTY

As all modern wars have an official photographer, I volunteered to accept this position in the late war in Montrose county, Colorado. I am now forwarding to you a series of official photographs covering the operations of this war.

The enemy consisted of General Scab, commanding officer. He had on his staff Col. Psoroptes Communis Ovis. Capt. Stray Sheep was also in the enemy's ranks. Private Storm, Cold Weather and Heavy Wool did valiant work for the enemy in the early part of the war, but as in all other wars there are usually some desertions from the ranks so were there in this, notably Privates Storm and Cold Weather, who deserted the enemy on the range. By doing this they fought and killed many of their former comrades and aided greatly in crushing the resistance of the enemy.

The Allies were headed by General Dipping Orders, who had on his staff Col. Nicotine, who threw himself in the face of the enemy continually. Also Capt. Vat should be mentioned for distinguished bravery in aiding Col. Nicotine to overcome the enemy. Private Pens won the D. S. C. for successfully holding the enemy.

It was stipulated at the beginning of this war that no gas should be used on either side, but Mr. Sheep Owner, a non-combatant, who was requested to maintain an attitude of watchful waiting or at most not more than armed neutrality, launched several gas attacks that aided the enemy. After that, gas was employed by both sides.

The superiority of the Allies' diplomacy was shown when the State of Utah issued an order to attack any of the enemy who might try to escape to their country.

The heavy fighting is practically over now, the enemy having been vanquished except some few who are in hiding, trying to recuperate their numbers so they may launch another attack. The Allies still maintain an army of occupation in the enemy's territory and are hunting down the few that may remain.

See illustrations of many harrowing battle scenes on opposite page.

Montrose, Colo. L. B. DUNLAP.

Dr. C. H. Westphal, prominent veterinarian of San Francisco, died recently, after a long illness.

1. Over the top. 2. The "zero hour." 3. Waiting for the "zero hour." 4. Going through the barrage. 5. A search for "cooties." 6. Routing the "cooties." 7. Prisoners after the battle. 8. A rest camp.

SO-CALLED MIXED INFECTION IN SWINE.*

The first condition usually met with in young pigs is scours, often due to heavy feeding of the sows, but it often occurs every year on the same premises in spite of sanitary and feeding precautions, so that one cannot help but believe that part of it, at least, is due to bacterial origin. The rule in all cases presented for treatment should be—clean-up, clean out and keep clean. Following this, I reduce the feed in amount and sometimes in quality, as heavy feeding of the sows seems to aggravate the trouble.

In my section of the state where corn is the main crop, it is often difficult to persuade the client that it would be better to greatly reduce the amount of corn fed and substitute other grains instead. It is important to reduce the feed. I then follow with intestinal antiseptics such as sulphocarbolates, or a few doses of creolin may be used.

I generally figure the dosage on the basis of each 1,000 pounds live weight of sows and pigs and add the medicant to slop, which is usually taken quite readily. Where trouble of this kind has existed on the premises for some time, or the particular cases in question have been allowed to go too far before treatment is begun, I usually administer about 0.5 mil of mixed infection bacterin at once and give a second dose of 1.5 mil five to seven days later. This is used in connection with the medicinal treatment which I first mentioned.

Probably the citation of a case would illustrate what results might be expected in the treatment of a case where these conditions occur along with others. Over 40 pigs were farrowed and in a few days scouring and coughing were noticed; canker sores began to appear around the mouth and on other parts of the body a few days later. When there were 21 pigs left I was called and found all stages of the trouble present including wrinkled scurvy and hairless skin. Postmortem examination showed intestinal necrobacillosis and pneumonia in various stages. Cleaning and disinfecting of the pens was ordered at once. As an internal medicant, I dispensed a 5-gr. calcidin tablet for each sow (250 lbs.) three times daily for five days. One mil mixed infection bacteria was given to each pig, followed in five days by 1.5 mil, and all the pigs were dipped in a solution of sodium-per-borate, 2 ounces to 1 gallon of water. Intestinal antiseptics were then continued for another week. At the time of giving the second dose, a litter of seven pigs was being farrowed and two of these were given 0.5 mil of bacterin, and owing to the case being eleven miles from home I did not repeat the dose nor did the remaining five pigs of the litter receive any.

A couple of months later I was again called to the farm as the pigs were not doing well. Out of the first pigs treated one died soon after the second dose of bacterin; the others weighed about 80 to 90 pounds. The two pigs which had received one dose of bacterin weighed about 40 pounds and the five which were untreated weighed about 20 pounds each. All of the litter of seven were sick and two of the five untreated died within a couple of days. The other five received two doses of bacterin five days apart but two of them will always be runts.

This was the best illustration of what mixed infection bacterins will do and results where not used, that I have ever seen and it gives one faith in the bacterins.

The fall pigs in this herd were given three-fourths of a mil of bacterin when one to two weeks old and a second dose of 1.5 mils each in five days. A few canker sores appeared but owing to cold weather and lack of attention they were not dipped in the sodium-per-borate solution. Three weeks later these canker sores had disappeared and the pigs were vaccinated for cholera, receiving 30 mil clear serum and 2 mil clear virus and now (ten days later) no trouble has been reported.

In my experience I have had two herds where the stock bacterin failed to do the work in an acute form of pulmonary infection, commonly called the "flu," but an autogenous bacterin gave as good results as could be expected under the circumstances and the same bacterin used later in young pigs of the same herd gave much better results than was commonly noticed where stock bacterin was used. Possibly the majority of the cases I meet are of a chronic nature in pigs weighing 25 to 75 pounds and are often associated with the intestinal worms commonly found in swine, the animals coughing more or less

*Read at meeting of Illinois V. M. A., Chicago, December, 1919.

and showing a seemingly unthrifty condition with constipation in some and in others more or less severe diarrhea. To these cases I give a worm capsule of sufficient dosage at the same time as the first dose of bacterin and follow in five to seven days with a second dose of the bacterin.

This treatment usually gives good results but I wish to caution you in regard to cases of this nature as some are ill because of a lack of feed. If this is the case it is best not to attempt treatment. unless you can get them on a good pasture and furnish more and better feed or persuade the client to do so.

A good vermifuge capsule in cases of diarrhea will remove the worms if there be any and also clean out the intestinal tract and get it in shape to benefit from any intestinal antiseptic which you may wish to give.

My experience in treating without using the two doses of bacterin five to seven days apart has not been successful enough to make me wish to recommend it in any case as a single line of treatment. Remember, there are cases where the disease (if I may call it so) has produced changes in the animal body which are not amenable to treatment or, in other words, I have failed to see the veterinarian who could bring the dead to life, and I believe it is futile to try.

Some have advocated the use of a single dose of bacterin, but I believe that by giving the second dose five to seven days after the first, many cases of partial recovery will be brought nearer to complete health and the client will be satisfied that he has at least received value for his money.

Recently I have had many cases of an acute pulmonary infection with temperatures of 104 to 107° which attacks both old and young, and in many cases the whole herd seems to become affected in a day. To these cases, I give two doses of bacterin with fair results. The loss of life in the untreated cases is not large but the loss of weight and the subsequent unthrifty condition is important, and it seems that the bacterin treatment reduces the severity of the attack and lessens the number of runts. In cases where I have a so-called mixed infection as a primary infection with cholera, I use two doses of the bacterin, sometimes giving the first dose at the same time as the serum and virus, but I prefer to give the second dose five days after the first. I believe one should be very careful in determining the necessity of the combined treatment—then give it. I believe in giving a good sized dose of virus and I believe that it will lessen the number of so-called breaks of mixed infection, but I do not think it will reduce them to a minimum.

I recently vaccinated a herd for cholera with serum and virus, and two days later they were attacked with a severe pulmonary affection. Two days later they received a dose of mixed infection bacterin and are now reported as being much improved and will get the second dose tomorrow. As to a pulmonary infestation with the larvae of the ascaridae, I have not yet seen a case where I thought that was the trouble.

Some have advocated the use of concrete wallows for this purpose, but I have failed to get a good idea of how one should be constructed so as to be successful and practical and further more, where would their value come in when sows are kept in separate pens at farrowing time or when farrowing time is in March or April when hogs would not care for a wallow?

I believe this one phase of the subject will require much study to work it out on a successful and practical basis.

Forreston, Ill. ROY E. KLUCK.

OIL FOR IMPACTION OF THE COLON

This is a rather common condition met by all of us in our everyday practice, especially in districts where much rough feed is used. I think the symptoms are clearly understood by most of us, so will give only my line of treatment, which differs somewhat from any so far published in the Journal and has given me very satisfactory results during the past six years.

When I visit the patient the first time, I give a capsule containing four drams aloin and one dram calomel, a hypodermic injection of one grain pilocarpin and a half grain strychnin sulphate, also one pint linseed oil in which is given fluidextract of nux vomica and fluidextract of pilocarpus, each one dram. I leave a four ounce mixture of the latter with instructions to give two drams in a pint of raw oil or mineral oil every three hours until all evidence of pain subsides, which generally takes six to twelve hours, at which time I give one grain eserin sulphate and a half grain strychnin. This completes my treatment in the ordinary case.

I have all feed taken away from the patient during treatment, and for twelve hours after the first good bowel movement. I then have the pa-

tients fed sparingly for a few days, give them access to water all the time, but generally they do not take much. In cases of extreme pain, I use lobelin and chloral but use neither unless pain is intense.

I have read with much pleasure Dr. Child's and Dr. Carter's articles on impaction and am surely going to give their treatments a trial and expect to find them of advantage. Dr. Child's article on chloral as an intravenous anesthetic was a boon to me, and I have been using it ever since and so far find it satisfactory. Try it. It is worthy of your consideration. I use two ounces chloral in eight ounces sterile water injected into the vein with a funnel and twelve-gauge needle and have had no bad results. I find it wise to cover the patients well until they are perfectly out from under the influence of it.

Saskatchewan. M.

ESSENTIALS IN CESAREAN SECTION IN SOWS

In reading the October Journal, I was greatly interested in the case reports of Dr. Maxfield on cesarean section in sows, but was disappointed that he did not give us the benefit of his technic. There are just one or two points that I should like to emphasize in connection with this operation for the benefit of those who have had experiences similar to my own.

Until about two years ago, 100 per cent of my cesarean section cases terminated fatally, and I had decided to abandon it entirely when I received a letter from Dr. C. W. Rippon of Jermyn, Pa., telling me of the excellent results he had obtained, whereupon I decided to give it one more trial. Much to my surprise and contrary to the prognosis I gave (the habit was established), the patient made a lovely recovery. Since then I have performed sixteen operations, most of them under adverse conditions, with but three fatalities.

In former operations every possible precaution was taken in regard to asepsis, sterilized catgut being used for all internal sutures, etc. I am ashamed to so publicly admit it, but as well as my memory serves me, I had always used interrupted sutures in the uterus. On all my successful operations, a continuous suture has been used. Since that time I have in an experimental way used plain linen thread for all sutures, have neglected many of the aseptic precautions, and yet the patients recover. In only a few cases have I been able to remove all pigs from one uterine incision, and in one case made as many as four with no bad results.

I wish to emphasize what my experience has led me to believe are the important features in the suscessful performance of this operation, as follows:

First: always anesthetize the patient;

Second: be clean;

Third: always be sure the serous membranes are in opposition, and suture the uterus deeply and *thoroughly* with a *continuous* suture.

Fourth: administer a stimulant following the operation, and of them all, camphor in oil is my preference.

By an application of these rules, many sows will be saved that otherwise would die. I realize that I am suggesting nothing new, but I write this in the hope of encouraging some, and there are many veterinarians who have become discouraged in that part of veterinary science which pertains to the "gentle art" of porcine obstetrics.

Purcellville, Va. W. H. Grubb.

TRAUMATIC PERICARDITIS IN A COW

I was called to see a nine-year-old Jersey cow that showed unmistakable symptoms of traumatic pericarditis. I could hear a grating sound about the heart and lungs. Also at every breath the animal drew, I heard the fluid shake in the pericardial sac. The cow was swollen from behind the front legs to her mouth.

I told the owner what was the matter and that I could do nothing to relieve the condition, stating that the cow would live about four days. She died on the night of the fourth day.

The owner was requested to let me know when the animal died, but he was away from home, and I did not learn of her death until four days after the event. Therefore, I was not anxious to puddle around in the gangrenous mess, so did not hold an autopsy. Her bowels had moved just before I arrived.

This disease is not rare in this country, although some cows so affected show very little if any swelling.

Iuka, Miss. A. M. Farris.

UNQUALIFIED ASSISTANTS

It must be remembered that fully half of the reputed success of the unqualified man depends on his knowledge of human nature and his ability to conceal his ignorance of scientific matters. He is able to please the clients and to satisfy their wants. The recent graduate, on the other hand, devotes all his attention to the treatment of diseases, and ignores the management of the clients; hence from the commercial aspect he is not so useful to the employer, and not infrequently may prove to be a source of loss. How is this state of affairs to be remedied? Obviously, the student must be taught a sufficient amount of the "business" side of the calling by spending a proper period of time with a practitioner.

In discussing matters of this kind there is a tendency to "take sides" and to judge the various points in a narrow-minded manner. The employer is apt to view the subject from the business aspect; the assistant is apt to regard it in relation to the amount of practical knowl-

edge he can derive from the post, and also has the remuneration question in view.

It is hardly necessary to point out that from the legal aspect a student who acts as assistant is on a similar standing to an unqualified assistant. Obviously, it is absurd to hold that a student should not act as assistant, because it is the only means by which he can obtain a practical knowledge of the profession.—E. W. Hoare in *The Veterinary News.*

SOME REMARKS ON VETERINARY PRACTICE

I want to make a few remarks regarding some of the articles and case reports in the October issue.

With reference to prices charged for vaccinating hogs, I think that is a matter to be left entirely to the judgment of each practitioner. He should get all he can without making his client sore. I used to add something like one cent to the cost price of each c. c. of serum used when treating large herds. When treating small bunches, I charged by the trip or visit. A man can add one cent to each c. c. of serum and make a nice thing and also keep his client in good humor. Hog vaccination is a big item in the veterinarian's practice, and he should devote a lot of study to it. Anti-hog cholera serum and virus should not be expected to prevent any other disease than hog cholera. Where swine plague is suspected to exist in combination with cholera, hemorrhagic septicemia vaccine should be administered at the same time as the anti-hog cholera serum.

I wish to say with regard to the report entitled "Cathartics Useless in Impaction of the Colon" that in several cases I have met with success by giving first one grain of arecolin and one-half grain strychnin hypodermically, then following up with full doses of cathartics. The arecolin by stimulating the secretions of the glands seems to soften the mass and also to stimulate peristalsis, so that the cathartics leave the stomach and assist in removing the feces.

As to the advice given that milk fever patients should not be moved, I have had several such patients moved before administering treatment with no bad results. I had one that went down in a small creek put on a stone boat and moved about fifty rods. Another that went down in a pasture on an extremely hot day was put on a barn door and moved about 100 yards to the shade of a tree. I think that under similar circumstances it is wise to move them.

I should like to add a little to the article setting forth that results depend upon careful replacement in eversion of the uterus. I quite agree with the writer's treatment but think he might have included the method of procedure for the replacement instead of just saying "with some difficulty." For the benefit of those who have had little experience in that line, I will say that I have replaced the everted uterus in cases where it resembled a bushel basket in size, and this has been accomplished by using roller bandages. After cleansing and softening the uterus as the doctor recommends in his article, I wrap a roller bandage around and around in such a manner as to force the blood out of the distended organ. By continual wrapping slowly but firmly, the size can be greatly reduced, and the organ replaced as the bandage is removed.

Pierre, S. D. J. F. McGhee.

HOGS KILLED BY WORM POWDER

I was called by one of my clients who asked me if I had serum on hand to treat his hogs with. As I didn't have any, I told him I could get it by the next morning or in a couple of days at the latest. He said he had lost one old sow and a pig that had died the day before but the rest seemed all right. I told him I thought it would be best if I came out and held a post-mortem examination on the ones that had died, as there was no cholera in the neighborhood so far as I knew.

I went out and looked his herd of hogs over, and while there were a few fall pigs that had the scours, the rest seemed to be all right. I asked him what he was feeding, and he said that the hogs seemed to be bound up and he thought a little wormy, so he had some patent hog powder of which he gave them an extra large dose. I suspected that might have been the cause of the scours.

He said the old sow had died within the last two hours. I found her bloated as tightly as a cow that has died with clover bloat. Upon opening the abdomen, the bowels were discovered to be distended with gas and the fecal matter was of a pea-green color. The stomach was full of ground and whole corn with a few rocks mixed with it. The small intestines were empty but badly inflamed. The large intestines were full of pea-green fecal matter with considerable gas, and there was at least half a gallon of rocks varying in size from that of a grain of sand to that of a sparrow's egg. The large intestines were also badly inflamed.

On autopsy of the pig, which had started to decompose, everything seemed to be normal except that in the stomach there was a knot of worms nearly as large as a man's fist, the worms being balled up together.

There is no doubt that the rocks had been accumulating in the sow's intestines for some time as there were so many of them. The question, however, arises as to whether it was the giving of the powder which acted as a physic and increased peristaltic movement that set up the inflammation, or could it have been caused by an over dose of the powder. Also, how long

could this sow have lived without these rocks causing any trouble?

Gifford, Ill. F. L. EDENBURN.

FEES FOR VACCINATING HOGS

Of course, there are differences in opinion among veterinarians, especially when it comes to fees. I do not think 25 cents per head, the price of the serum and mileage, is too much for hog cholera vaccination. It does not seem to me that one can say a veterinarian's time is worth $1, $5 or $20 an hour. If we are called on to treat an animal, a case of dystocia, for instance, we can't say all obstetrical cases cost $10, whether it takes ten minutes or three hours. If that cow costs $40, and it took a veterinarian three hours, it doesn't seem he is entitled to more than $12. If that same cow cost $1,000 and it took him ten minutes to deliver a live calf, he could charge $100 and still not be profiteering, in my opinion. Of course, circumstances alter cases, i. e., if a rich man had a cow valued at $60 or the same animal belonged to a very poor man. The same thing when it comes to hog cholera. It would cost around $20 to use serum and virus on ten one-hundred-pound pigs ten miles out in the country. This same bunch of pigs is worth on the market about $200. Some veterinarians would be profiteering in charging this much, and another veterinarian might be losing money.

Just this last month a farmer lost two 200-pound pigs. The county agent wanted to vaccinate for hog cholera. He finally came to me and told me how the pigs acted before agreeing to use the serum. From the history given he was informed it was very unlikely to be cholera. The symptoms he gave indicated acute indigestion. The last pig had been dead since noon. After the postmortem examination he was told in our opinion it was overfeeding on Johnson grass roots. There were six other pigs on this same field. None have died since. His place is about three-fourths of a mile from the office. I didn't do this dead pig one particle of good, nor did I do a thing for the well ones, and it cost the farmer $3. Was I profiteering? I don't think so.

When we give a lawyer a case he charges according to the amount of money involved, whether it takes him one hour or one week. That's all a farmer raises hogs and cattle for, what money he can get out of them. When county agents vaccinate hogs with hog cholera serum, for rickets, acute indigestion, etc., they are profiteering, even if they do it for "their expenses," as they usually do, and the owner is worth a million dollars.

Safford, Ariz. H. GARDNER.

PRICES FOR ANTI HOG CHOLERA VACCINATION

An editorial in the October issue of the Journal discussing the matter of charging for anti-hog cholera vaccination meets with my entire approval. Obviously the price for this service will differ in different localities, and even for different herds in the same locality.

It is ridiculous to charge a small fee for one's services where the benefit received by the owner of the animals is as great as it is in the case of the prevention of hog cholera. This work is irregular, somewhat arduous, and considering the necessity for accurate diagnosis, requires a high degree of skill and much experience. I believe the veterinarian should charge a good fee, and, of course, render good service.

Perry, N. Y. FRED C. CLARK.

COMFORT OF PATIENT ESSENTIAL IN TREATING MILK FEVER

I was called just at dark to see a cow that had calved three days previously and found her down a half-mile from the barn with a case of parturient paralysis. She was in one rough place; prognosis, bad. I gave her hypodermically 10 c.c. camphor in oil; put her on a stone boat and dragged her to the stable. Then gave her the air treatment, and one grain of strychnin hypodermically. Propped her up with bags of oats, put up four quarter grains of strychnin with orders to give one powder every four hours and to turn her over every four hours. Returning next morning at 8:30 I found her up and eating. Left tonic. Good recovery.

In milk fever I have the patient turned every four hours. I have had four patients hauled to the stable in the last three months. Good recovery in all. I washed and disinfected the udders until 14 years ago; then stopped that; good recovery just the same.—O. F. B., Mass.

COMING MEETINGS

The Oklahoma State Veterinary Medical Association, Oklahoma City, January 19, 20, 1920.

The Virginia State Veterinary Medical Association, Murphy Hotel, Richmond, January 8, 9, 1920.

Colorado Veterinary Medical Association, Gentlemen's Riding and Driving Club, 1525 Curtis St., Denver, January 22, 1920.

Missouri Valley Veterinary Association, Kansas City, Mo., February 10-12, 1920.

Indiana Veterinary Medical Association, Claypool Hotel, Indianapolis, January 8, 9, 1920.

Iowa Veterinary Association, Hotel Savery, Des Moines, January 13, 14, 15, 1920.

Ohio State Veterinary Medical Association, Deshler Hotel, Columbus, January 16, 17, 1920.

Minnesota State Veterinary Medical Association, St. Paul, January 7, 8, 1920.